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VOLUME II
A SCREENING CRITERION FOR
DELIVERED SOURCE IN MILITARY SOFTWARE
(APPENDICES A THROUGH H)

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Software and Computer Directorate
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Warminster, Pennsylvania 18974

14 November 1979

TECHNICAL NOTE
AIRTASK NO. ZF61412001
Work Unit No. GC333

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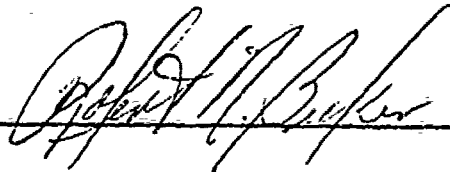
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Software Reliability Investigation Repair Improvement		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The goal of this study is to identify measurable characteristics of the program source code that indicate the likelihood of future changes to the program modules. These changes include both repair of software errors and improvement in software performance. Source code data and module change data were analyzed to correlate the source code characteristics with the number of changes made to the modules. (Continued on reverse.)		

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The following conclusions were reached: (1) a pair of source code parameters (size/structure) in a linear relationship is a useful predictor of the number of changes, (2) a single parameter is not sufficient as a predictor of future change and, (3) multiple parameters and non-linear relationships do not significantly improve the prediction over the two parameter linear case.

The results can be made an acceptance criterion for delivered source modules prior to module testing. This application would support present Navy efforts to improve software reliability and maintainability through engineering techniques applied as early as possible in the software development process.

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APPENDIX A
SAMPLE CHANGE REQUEST

DSCP CHANGE REQUEST - 45

Originator's Name: Norma Stopyra

Page 1 of 1

Module: DUBφφINS (SDG-75)

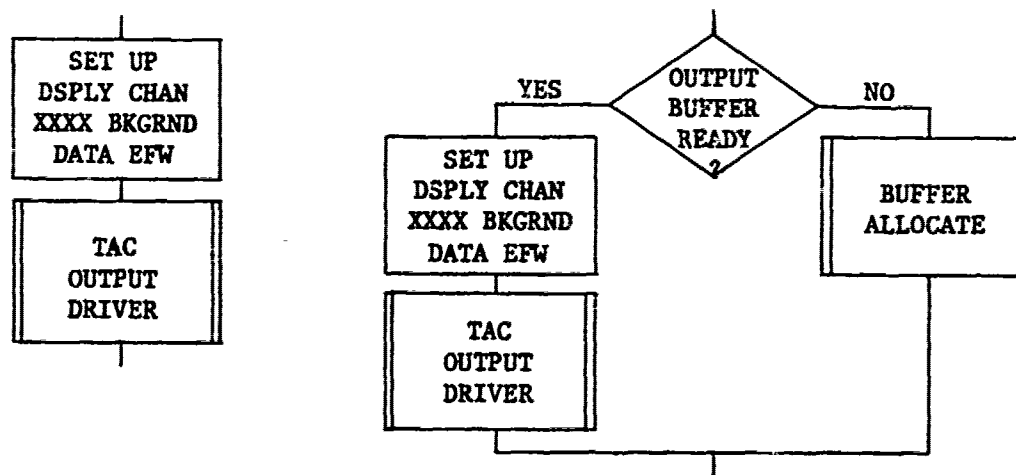
Date: 3/11/74

Title of Change:

Description of Change:

Replace (SDG-75 2B3)

with



Justification for Change:

The program is calling the tactical output driver to send a nonexistent output buffer (word count = φ) whenever the 1st buffer transfer type is an error requiring the maintenance module to be called. In such cases, the output buffer should be released and the program should return to the calling module after other recovery processing is completed.

Implementation Period From 3/11/74

To 3/11/74

Team Initials:

Approval:

NADC-79163-50

APPENDIX B

SAMPLE CHANGE REQUEST DATA SHEET

15.

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APPENDIX C

RAW DATA

ABBREVIATIONS OF DATA ITEMS

CHANGE DATA

1. TC: TOTAL CHANGES
2. DC: DESIGN CHANGES
3. CC: CODE CHANGES
4. UC: UNKNOWN CHANGE AREAS
5. KE: KNOWN ERRORS
6. KM: KNOWN MODIFICATIONS
7. UT: UNKNOWN TYPE ERRORS
8. PE: POSSIBLE ERRORS

SOURCE IMAGE DATA

1. NC : NUMBER OF CARDS
2. NCM : NUMBER OF COMMENTS
3. PS : NUMBER OF PROCESSED CARDS (SOURCE)
4. R-UR : REGISTERS-UNIQUE REFERENCES
5. R-TR : REGISTERS-TOTAL REFERENCES
6. NB-UR: NONBRANCHING OPCODES-UNIQUE REFERENCES
7. NR-TR: NONBRANCHING OPCODES-TOTAL REFERENCES
8. B-UR : BRANCHING OPCODES-UNIQUE REFERENCES
9. B-TR : BRANCHING OPCODES-TOTAL REFERENCES
10. D-UR : DIRECTIVE OPCODES-UNIQUE REFERENCES
11. D-TR : DIRECTIVE OPCODES-TOTAL REFERENCES
12. AO-UR: ALL OPCODES-UNIQUE REFERENCES
13. AO-TR: ALL OPCODES-TOTAL REFERENCES
14. LN-UR: LOCAL NAMES-UNIQUE REFERENCES
15. LN-TP: LOCAL NAMES-TOTAL REFERENCES
16. GN-UR: GLOBAL NAMES-UNIQUE REFERENCES
17. GN-TR: GLOBAL NAMES-TOTAL REFERENCES
18. N-UR : NUMBERS-UNIQUE REFERENCES
19. N-TR : NUMBERS-TOTAL REFERENCES
20. LE-UR: LOCAL EXPRESSIONS-UNIQUE REFERENCES
21. LE-TR: LOCAL EXPRESSIONS-TOTAL REFERENCES
22. GE-UR: GLOBAL EXPRESSIONS-UNIQUE REFERENCES
23. GE-TR: GLOBAL EXPRESSIONS-TOTAL REFERENCES
24. AV-UR: ALL VARIABLES-UNIQUE REFERENCES
25. AV-TR: ALL VARIABLES-TOTAL REFERENCES
26. ITE : NUMBER OF IF-THEN-ELSEs
27. DOW : NUMBER OF DOWHILES
28. DOU : NUMBER OF DOUNTILS
29. MN : MCCABE NUMBER
30. PC : PROGRAM CLARITY

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA																PAGE		

		TC GN-UR	NC	NCH 60-TR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UR	N3-UR LE-TR	UC NB-TR GE-UR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AO-UR DOM	UT AO-TR DOU	LN-UR 4N	LN-TR PC	PE			
1	AAPR01JH	CHANGE DATA	15.	1266.	869.	5.	14.	327.	12.	1.	0.	0.	11.	11.	0.	0.	39.	327.	108.	15.
	SOURCE IMAGE DATA	3.		25.		60.		25.		6.	30.	0.	104.	142.	4.	47.	3.	0.	51.	40608.
2	AAPR05JH	CHANGE DATA	0.	134.	93.	2.	0.	36.	9.	0.	0.	0.	0.	0.	3.	12.	18.	36.	12.	0.
	SOURCE IMAGE DATA	2.		2.		13.		12.		0.	0.	0.	26.	36.	36.	1.	1.	0.	3.	10164.
3	AAPR06JH	CHANGE DATA	1.	60.	46.	1.	1.	5.	5.	0.	0.	0.	0.	0.	2.	4.	9.	13.	7.	1.
	SOURCE IMAGE DATA	1.		1.		5.		5.		0.	0.	0.	13.	15.	15.	0.	0.	0.	1.	1205.
4	AAPR07JH	CHANGE DATA	1.	56.	46.	1.	0.	10.	4.	1.	0.	0.	1.	2.	2.	0.	7.	10.	5.	1.
	SOURCE IMAGE DATA	1.		1.		2.		2.		0.	0.	0.	8.	13.	13.	0.	0.	0.	1.	683.
5	AAPR07JH	CHANGE DATA	1.	60.	46.	1.	0.	13.	6.	1.	0.	0.	1.	2.	2.	2.	10.	13.	5.	1.
	SOURCE IMAGE DATA	1.		1.		3.		3.		0.	0.	0.	10.	11.	11.	0.	0.	0.	1.	1395.
6	AAPR08JH	CHANGE DATA	3.	255.	174.	0.	2.	67.	11.	1.	0.	0.	2.	2.	3.	0.	18.	67.	22.	3.
	SOURCE IMAGE DATA	0.		0.		21.		15.		0.	0.	0.	37.	74.	74.	6.	1.	0.	8.	27923.
7	AAPR08JH	CHANGE DATA	1.	228.	155.	2.	1.	58.	9.	0.	0.	0.	1.	1.	2.	0.	24.	58.	22.	1.
	SOURCE IMAGE DATA	2.		2.		18.		9.		42.	15.	1.	34.	66.	66.	7.	0.	0.	8.	30350.
8	AAPR09JH	CHANGE DATA	0.	86.	72.	0.	0.	14.	4.	0.	0.	0.	0.	0.	2.	0.	9.	14.	11.	0.
	SOURCE IMAGE DATA	0.		0.		2.		2.		1.	1.	0.	14.	18.	18.	2.	0.	0.	3.	1012.
9	ACCD01CS	CHANGE DATA	1.	100.	65.	2.	0.	32.	5.	1.	0.	0.	0.	0.	4.	15.	17.	32.	9.	0.
	SOURCE IMAGE DATA	2.		2.		16.		13.		0.	0.	0.	24.	31.	31.	0.	0.	1.	2.	8213.
10	ACD001CS	CHANGE DATA	13.	470.	279.	9.	7.	183.	13.	6.	0.	0.	5.	5.	5.	3.	44.	183.	48.	10.
	SOURCE IMAGE DATA	9.		13.		67.		26.		7.	7.	2.	32.	92.	196.	12.	0.	2.	15.	102548.
11	ACF001CS	CHANGE DATA	1.	315.	215.	5.	1.	94.	14.	0.	0.	0.	1.	1.	5.	18.	36.	94.	22.	1.
	SOURCE IMAGE DATA	5.		5.		25.		14.		4.	4.	0.	45.	83.	83.	8.	0.	2.	11.	96143.
12	ACI001CS	CHANGE DATA	1.	235.	163.	8.	1.	68.	12.	0.	0.	0.	0.	0.	4.	14.	31.	68.	18.	0.
	SOURCE IMAGE DATA	8.		9.		22.		14.		0.	0.	1.	16.	41.	71.	4.	0.	0.	5.	44508.

RAW DATA

MODULE NAME		CHANGE DATA SOURCE IMAGE DATA		MODULES																				LN-UR UN		LN-TR UN		PC	
				TC	NC	GN-TR	NCM	PS	DC	R-UR	R-TR	CC	NR-TR	NR-UR	UC	GE-TR	H-UR	B-TR	KE	O-UR	D-TR	ITE	KM						
13	ACLO01CS	CHANGE DATA	155.	2.	111.	41.	1.	6.	37.	11.	1.	0.	0.	0.	4.	7.	0.	3.	1.	6.	18.	0.	0.	0.	0.	11.	5.	16687.	20.
14	ACNO01CS	CHANGE DATA	115.	4.	92.	20.	0.	4.	18.	0.	0.	0.	13.	4.	1.	4.	23.	43.	0.	3.	16.	0.	0.	0.	0.	6.	7.	4963.	8.
15	ACNO01CS	CHANGE DATA	240.	5.	147.	83.	3.	10.	74.	20.	2.	0.	49.	8.	1.	14.	16.	22.	85.	1.	32.	0.	2.	83.	21.	6.	69943.	43.	
16	ACPO01CS	CHANGE DATA	500.	6.	347.	144.	3.	13.	106.	21.	3.	0.	76.	11.	0.	40.	68.	169.	4.	28.	36.	0.	144.	46.	20.	2.	175920.	109.	
17	ACRO01CS	CHANGE DATA	60.	2.	44.	12.	0.	5.	8.	5.	0.	0.	5.	2.	0.	2.	12.	13.	0.	5.	9.	0.	0.	0.	4.	1.	862.	5.	
18	ACSO01CS	CHANGE DATA	310.	4.	203.	99.	3.	14.	76.	19.	1.	0.	51.	7.	1.	19.	63.	106.	3.	29.	29.	0.	2.	31.	9.	4.	44794.	65.	
19	ACT001CS	CHANGE DATA	215.	3.	139.	72.	1.	11.	74.	16.	1.	0.	45.	7.	0.	13.	36.	61.	3.	14.	26.	0.	1.	72.	17.	6.	47844.	32.	
20	ACV001CS	CHANGE DATA	375.	2.	246.	123.	5.	13.	95.	23.	4.	0.	67.	8.	2.	24.	64.	133.	4.	32.	35.	0.	1.	123.	15.	48.	123813.	84.	
21	ACVA02CS	CHANGE DATA	107.	0.	78.	29.	0.	3.	11.	2.	2.	0.	11.	4.	0.	8.	24.	43.	1.	10.	7.	0.	0.	0.	16.	6.	2956.	30.	
22	ACVR14CS	CHANGE DATA	39.	0.	32.	7.	1.	3.	3.	2.	0.	0.	3.	2.	0.	2.	8.	11.	1.	2.	5.	0.	1.	7.	2.	6.	267.	1.	
23	ACVC04CS	CHANGE DATA	42.	0.	35.	7.	0.	3.	3.	2.	0.	0.	3.	2.	0.	2.	8.	11.	1.	2.	5.	0.	0.	0.	7.	6.	0.	267.	8.
24	ACVD07CS	CHANGE DATA	41.	0.	34.	7.	0.	3.	3.	2.	0.	0.	3.	2.	0.	2.	8.	11.	1.	2.	5.	0.	0.	0.	7.	6.	0.	267.	8.

RAW DATA

MODULF NAME	CHANGE DATA SOURCE IMAGE DATA	MODULES 25 TO 36										PAGE 1		LN-UR MN	LN-TR PC
		TC GN-UR	NC GN-UR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UR	CC N8-UR LE-TR	UC N8-TR GE-UR	B-UR GE-TR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AO-UR DOU		
25 ACV090CS	CHANGE DATA SOURCE IMAGE DATA	0. 40. 0.	33. 0.	0. 7. 2.	3. 3. 0.	0. 3. 0.	2. 0. 0.	0. 3. 0.	2. 0. 0.	0. 2. 8.	1. 11. 0.	0. 1. 0.	5. 0. 0.	6. 2. 0.	0. 8. 267.
26 ACV110CS	CHANGE DATA SOURCE IMAGE DATA	2. 55. 0.	41. 0.	1. 14. 3.	3. 6. 0.	1. 6. 1.	2. 1. 0.	0. 6. 0.	4. 0. 0.	0. 4. 13.	1. 21. 0.	1. 4. 2.	7. 0. 0.	9. 3. 0.	1. 14. 1095.
27 ACV060CS	CHANGE DATA SOURCE IMAGE DATA	0. 54. 0.	43. 0.	0. 11. 3.	3. 4. 0.	0. 4. 0.	2. 0. 0.	0. 4. 0.	2. 0. 0.	0. 3. 11.	1. 17. 0.	0. 4. 2.	5. 0. 0.	8. 3. 0.	0. 13. 510.
28 ACV011CS	CHANGE DATA SOURCE IMAGE DATA	1. 52. 0.	38. 0.	1. 14. 3.	3. 6. 0.	0. 6. 0.	2. 0. 0.	0. 6. 0.	2. 0. 0.	0. 4. 12.	1. 21. 0.	0. 4. 2.	5. 0. 0.	9. 3. 0.	1. 15. 797.
29 ACV112CS	CHANGE DATA SOURCE IMAGE DATA	1. 61. 0.	44. 0.	1. 17. 5.	3. 6. 0.	0. 6. 0.	3. 0. 0.	0. 6. 0.	3. 0. 0.	0. 5. 17.	1. 27. 0.	0. 6. 2.	7. 0. 0.	12. 3. 0.	1. 21. 1373.
30 ACV116CS	CHANGE DATA SOURCE IMAGE DATA	1. 58. 0.	41. 0.	1. 17. 5.	3. 6. 0.	0. 6. 0.	3. 0. 0.	0. 6. 0.	3. 0. 0.	0. 5. 17.	1. 27. 0.	0. 6. 2.	7. 0. 0.	12. 3. 0.	1. 21. 1373.
31 ACV081CS	CHANGE DATA SOURCE IMAGE DATA	1. 56. 0.	42. 0.	1. 14. 3.	3. 6. 0.	0. 6. 1.	2. 1. 0.	0. 6. 0.	2. 0. 0.	0. 4. 13.	1. 21. 0.	0. 4. 2.	5. 0. 0.	9. 3. 0.	1. 14. 760.
32 ACV011CS	CHANGE DATA SOURCE IMAGE DATA	0. 36. 0.	29. 0.	0. 7. 2.	3. 3. 0.	0. 3. 0.	2. 0. 0.	0. 3. 0.	2. 0. 0.	0. 2. 8.	1. 11. 0.	0. 2. 1.	5. 0. 0.	6. 2. 0.	0. 8. 267.
33 ACV050CS	CHANGE DATA SOURCE IMAGE DATA	0. 41. 0.	34. 0.	0. 7. 2.	3. 3. 0.	0. 3. 0.	2. 0. 0.	0. 3. 0.	2. 0. 0.	0. 2. 8.	1. 11. 0.	0. 2. 1.	5. 0. 0.	6. 2. 0.	0. 8. 267.
34 ACV503CS	CHANGE DATA SOURCE IMAGE DATA	0. 40. 0.	33. 0.	0. 7. 2.	3. 3. 0.	0. 3. 0.	2. 0. 0.	0. 3. 0.	2. 0. 0.	0. 2. 8.	1. 11. 0.	0. 2. 1.	5. 0. 0.	6. 2. 0.	0. 8. 267.
35 ACV080CS	CHANGE DATA SOURCE IMAGE DATA	0. 39. 0.	32. 0.	0. 7. 2.	3. 3. 0.	0. 3. 0.	2. 0. 0.	0. 3. 0.	2. 0. 0.	0. 2. 8.	1. 11. 0.	0. 2. 1.	5. 0. 0.	6. 2. 0.	0. 8. 267.
36 ACV115CS	CHANGE DATA SOURCE IMAGE DATA	1. 13. 0.	12. 0.	1. 1. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	1. 0. 0.	0. 1. 2.	0. 0. 2.	0. 0. 0.	1. 0. 0.	2. 1. 0.	1. 2. 2.

MODULE NAME		RAW DATA												MODULES				PAGE			
		CHANGE DATA	SOURCE IMAGE DATA	IC	NCM	DC	R-UR	R-TR	CC	UC	KE	D-UR	D-TR	AV-UR	AV-TR	ITF	DOM	AN-TR	LN-UR	LN-TR	PC
GN-UR	NC	PS	N-UR	N-TR	LE-UR	LE-TR	GE-UR	GE-TR	AV-UR	AV-TR	ITF	DOM	AN-TR	LN-UR	LN-TR	PC	UT	DOM	AN-TR	LN-UR	LN-TR
37 ASPROICS	8.	358.	33.	118.	0.	281.	36.	192.	0.	0.	7.	5.	93.	388.	40.	0.	54.	358.	88.	217.	432808.
38 ASPCKPCS	99.	72.	1.	3.	18.	9.	13.	0.	0.	0.	8.	2.	6.	20.	34.	3.	0.	27.	15.	27.	8880.
39 ASPICICS	113.	66.	0.	6.	0.	32.	12.	20.	0.	0.	0.	3.	23.	42.	1.	0.	19.	47.	12.	18.	13987.
40 ASRROICS	140.	91.	42.	15.	0.	43.	20.	30.	0.	0.	0.	4.	6.	21.	35.	2.	29.	42.	10.	17.	26613.
41 CAA001AS	145.	82.	15.	23.	1.	44.	14.	33.	1.	0.	0.	3.	14.	62.	5.	0.	25.	58.	13.	26.	30763.
42 CAR001AS	190.	120.	64.	21.	0.	42.	15.	34.	0.	0.	1.	3.	9.	73.	7.	0.	25.	64.	17.	36.	29131.
43 CAF001AS	0.	76.	12.	10.	0.	27.	9.	22.	0.	0.	0.	3.	6.	45.	4.	0.	18.	38.	10.	19.	10893.
44 CAA001AS	125.	85.	35.	11.	0.	24.	12.	20.	0.	0.	0.	3.	6.	39.	3.	1.	21.	35.	9.	17.	11604.
45 CAJ001AS	125.	84.	38.	9.	0.	19.	5.	16.	0.	0.	2.	3.	6.	46.	4.	0.	13.	38.	11.	21.	6787.
46 CAS001AS	0.	37.	14.	4.	0.	6.	5.	5.	0.	0.	0.	3.	4.	18.	1.	0.	13.	14.	7.	10.	1632.
47 CRA001AS	79.	48.	24.	5.	3.	14.	8.	9.	0.	0.	2.	4.	10.	28.	1.	1.	17.	24.	9.	13.	5888.
48 CRATS1AS	121.	69.	52.	12.	0.	57.	14.	36.	0.	0.	3.	2.	4.	46.	4.	0.	21.	52.	10.	18.	23857.

MODULE NAME	RAW DATA										MODULES 49 TO 60						PAGE	
	TC	DC	R-UR	CC	CC	CC	CC	CC	CC	CC	KE	D-UR	AV-TR	AV-TR	UT	LN-UR	LN-TR	PC
CHANGE DATA	NC	PS	N-UR	R-UR	LE-UR	LE-UR	LE-UR	LE-UR	LE-UR	LE-UR	AV-UR	AV-TR	AV-TR	AV-TR	DOU	MN	PC	
SOURCE IMAGE DATA	GN-UR	TR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	
49 CRC001AS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	150.	51.	7.	29.	9.	0.	0.	0.	0.	0.	19.	3.	61.	10.	20.	16.	34.	19141.
SOURCE IMAGE DATA	7.	9.	13.	0.	0.	0.	0.	0.	0.	0.	32.	0.	0.	0.	0.	7.	0.	0.
50 CRD001AS	2.	2.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	60.	20.	5.	15.	8.	11.	0.	0.	0.	0.	6.	3.	24.	3.	15.	7.	9.	3801.
SOURCE IMAGE DATA	5.	5.	5.	0.	0.	2.	0.	0.	0.	0.	19.	3.	19.	24.	0.	2.	0.	0.
51 CRF001AS	4.	2.	10.	2.	16.	45.	0.	0.	0.	0.	3.	3.	72.	1.	25.	10.	21.	42457.
CHANGE DATA	210.	72.	20.	61.	0.	1.	0.	0.	0.	0.	40.	72.	0.	0.	0.	7.	0.	0.
SOURCE IMAGE DATA	14.	15.	20.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
52 CRF001AS	0.	0.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	130.	31.	6.	13.	6.	8.	0.	0.	0.	0.	17.	3.	40.	0.	16.	12.	28.	6216.
SOURCE IMAGE DATA	8.	6.	6.	0.	0.	0.	0.	0.	0.	0.	26.	40.	0.	1.	0.	6.	0.	0.
53 CRG001AS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	35.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	7.	0.	4.	3.	3.	90.
SOURCE IMAGE DATA	3.	1.	1.	0.	0.	0.	0.	0.	0.	0.	7.	7.	0.	0.	0.	1.	0.	0.
54 CRK001AS	0.	0.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	95.	25.	6.	17.	8.	13.	0.	0.	0.	0.	9.	3.	22.	3.	14.	6.	7.	4093.
SOURCE IMAGE DATA	10.	13.	5.	1.	1.	1.	0.	0.	0.	0.	22.	27.	1.	0.	0.	2.	0.	0.
55 CRL001AS	2.	2.	7.	0.	0.	0.	0.	0.	0.	0.	1.	3.	71.	1.	27.	12.	23.	46854.
CHANGE DATA	170.	66.	19.	57.	18.	45.	0.	0.	0.	0.	15.	3.	37.	6.	0.	5.	0.	0.
SOURCE IMAGE DATA	11.	14.	19.	0.	0.	0.	0.	0.	0.	0.	37.	71.	0.	0.	0.	0.	0.	0.
56 CCR001AS	2.	2.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	85.	28.	4.	23.	8.	17.	0.	0.	0.	0.	8.	3.	30.	3.	15.	6.	8.	1.
SOURCE IMAGE DATA	11.	5.	6.	0.	0.	0.	0.	0.	0.	0.	22.	30.	0.	0.	0.	2.	0.	0.
57 CCC001AS	10.	4.	14.	6.	25.	137.	0.	0.	0.	0.	7.	3.	215.	2.	39.	33.	82.	326058.
CHANGE DATA	520.	207.	67.	173.	0.	4.	0.	0.	0.	0.	49.	3.	18.	18.	0.	19.	0.	0.
SOURCE IMAGE DATA	18.	29.	29.	0.	0.	0.	0.	0.	0.	0.	84.	215.	0.	0.	0.	0.	0.	0.
58 CCE001AS	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	90.	27.	2.	9.	4.	7.	0.	0.	0.	0.	16.	3.	34.	0.	11.	10.	17.	3424.
SOURCE IMAGE DATA	9.	4.	5.	0.	0.	0.	0.	0.	0.	0.	23.	34.	0.	0.	0.	4.	0.	0.
59 CCF001AS	0.	0.	8.	0.	13.	40.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	130.	52.	8.	56.	0.	0.	0.	0.	0.	0.	8.	3.	44.	0.	20.	6.	9.	23962.
SOURCE IMAGE DATA	12.	11.	14.	0.	0.	0.	0.	0.	0.	0.	29.	44.	0.	0.	0.	3.	0.	0.
60 CCG001AS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHANGE DATA	30.	18.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SOURCE IMAGE DATA	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	3.	6.	0.	0.	0.	1.	0.	0.

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 61 TO 72										PAGE	
		TC GN-UR	NCM GN-TP	DC PS N-UP	R-UR N-TR	CC R-TP LF-UR	NR-UR LE-TR	UC NR-TP GE-UR	R-UR GE-TP	KE R-TR AV-UR	D-UR AV-TP	ITF	KW D-TP AO-UR	AO-TP DOU	LN-UP MN	UT LN-TP PC							
61 CCH001AS	CHANGE DATA	0.	102.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
	SOURCE IMAGE DATA	190.	20.	18.	10.	28.	20.	61.	6.	12.	5.	10.	31.	15.	73462.	31.							
62 CCH001AS	CHANGE DATA	0.	64.	0.	14.	20.	18.	36.	4.	10.	3.	6.	25.	7.	11.	0.							
	SOURCE IMAGE DATA	120.	22.	12.	14.	20.	1.	0.	0.	34.	54.	2.	0.	3.	23495.	0.							
63 CCH001AS	CHANGE DATA	2.	56.	2.	11.	17.	18.	34.	5.	1.	3.	1.	26.	8.	14.	1.							
	SOURCE IMAGE DATA	110.	10.	12.	17.	17.	0.	2.	3.	29.	44.	2.	0.	3.	26873.	0.							
64 CCH001AS	CHANGE DATA	0.	31.	0.	1.	3.	4.	5.	3.	0.	3.	0.	10.	5.	6.	0.							
	SOURCE IMAGE DATA	50.	5.	3.	3.	3.	0.	0.	0.	11.	14.	1.	0.	2.	1094.	0.							
65 CCH001AS	CHANGE DATA	0.	80.	0.	8.	14.	13.	23.	4.	12.	3.	5.	20.	8.	14.	0.							
	SOURCE IMAGE DATA	125.	16.	12.	14.	0.	0.	0.	0.	32.	44.	3.	0.	4.	12458.	0.							
66 CCH001AS	CHANGE DATA	3.	100.	2.	13.	21.	15.	43.	7.	2.	3.	1.	25.	14.	2.	0.							
	SOURCE IMAGE DATA	175.	26.	15.	21.	0.	0.	0.	0.	43.	77.	5.	0.	6.	37633.	0.							
67 CCH001AS	CHANGE DATA	3.	90.	2.	7.	20.	19.	36.	6.	10.	3.	6.	28.	10.	20.	0.							
	SOURCE IMAGE DATA	145.	11.	14.	20.	0.	0.	1.	2.	31.	53.	4.	1.	6.	35552.	0.							
68 CCH001AS	CHANGE DATA	0.	50.	0.	3.	5.	7.	9.	5.	0.	3.	5.	15.	9.	16.	0.							
	SOURCE IMAGE DATA	75.	3.	5.	5.	0.	0.	0.	0.	16.	24.	2.	1.	4.	4235.	0.							
69 CCH001AS	CHANGE DATA	3.	72.	1.	7.	20.	12.	35.	5.	11.	3.	6.	20.	10.	19.	0.							
	SOURCE IMAGE DATA	130.	6.	11.	20.	0.	0.	0.	0.	31.	50.	4.	0.	5.	21903.	0.							
70 CCH001AS	CHANGE DATA	2.	121.	2.	11.	23.	16.	48.	8.	16.	3.	7.	27.	11.	22.	0.							
	SOURCE IMAGE DATA	195.	21.	18.	23.	0.	0.	0.	0.	38.	66.	6.	0.	7.	46126.	0.							
71 CCH001AS	CHANGE DATA	2.	75.	1.	10.	28.	13.	55.	3.	1.	3.	1.	14.	5.	6.	0.							
	SOURCE IMAGE DATA	150.	21.	18.	28.	0.	0.	1.	3.	33.	58.	1.	0.	2.	35166.	0.							
72 CCH001AS	CHANGE DATA	0.	78.	0.	9.	22.	13.	48.	3.	0.	3.	0.	19.	6.	9.	0.							
	SOURCE IMAGE DATA	145.	24.	15.	22.	0.	0.	0.	0.	31.	55.	2.	0.	3.	29675.	0.							

RAW DATA

MODULES 73 TO 84

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	TC NC GN-UR	DC PS N-UR	CC R-TP LE-UR	UC NR-TR GE-UR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AO-UR DOW	UT AO-TR DOW	LN-UR WN	PF LN-TR PC
73 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	145.	58.	59.	39.	13.	3.	6.	23.	58.	9.	17.
		7.	17.	0.	0.	0.	49.	4.	0.	0.	5.	27178.
74 CDR001AS	CHANGE DATA	2.	1.	1.	0.	1.	1.	1.	21.	0.	5.	1.
	SOURCE IMAGE DATA	100.	43.	44.	32.	8.	3.	3.	43.	43.	5.	8.
		6.	18.	0.	0.	23.	43.	1.	0.	0.	2.	21831.
75 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	50.	28.	33.	24.	2.	2.	2.	14.	28.	3.	3.
		6.	10.	0.	1.	20.	22.	0.	0.	0.	1.	6441.
76 CDR001AS	CHANGE DATA	1.	1.	0.	0.	0.	0.	0.	0.	1.	1.	1.
	SOURCE IMAGE DATA	15.	3.	0.	0.	1.	2.	2.	3.	3.	2.	2.
		0.	0.	0.	0.	3.	3.	0.	0.	0.	1.	23.
77 CLE001PZ	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	225.	93.	100.	69.	8.	3.	6.	31.	93.	14.	27.
		10.	16.	0.	2.	3.	44.	4.	1.	1.	7.	87913.
78 CDR001AS	CHANGE DATA	6.	3.	3.	0.	1.	1.	2.	27.	3.	39.	4.
	SOURCE IMAGE DATA	383.	125.	72.	54.	7.	48.	3.	27.	125.	39.	91.
		19.	26.	0.	0.	0.	78.	149.	0.	0.	19.	80302.
79 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	77.	32.	22.	16.	5.	12.	4.	17.	32.	11.	19.
		6.	11.	0.	0.	0.	25.	3.	0.	0.	4.	8441.
80 CDR001P7	CHANGE DATA	2.	2.	0.	0.	0.	0.	2.	0.	0.	0.	0.
	SOURCE IMAGE DATA	105.	33.	31.	18.	6.	7.	8.	24.	33.	10.	17.
		3.	9.	1.	0.	0.	32.	1.	0.	2.	4.	13922.
81 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	25.	11.	9.	8.	1.	1.	2.	6.	11.	3.	3.
		6.	6.	1.	2.	12.	12.	0.	0.	0.	1.	514.
82 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	25.	11.	9.	8.	1.	1.	2.	6.	11.	3.	3.
		6.	6.	1.	2.	12.	12.	0.	0.	0.	1.	514.
83 CDR001AS	CHANGE DATA	2.	1.	1.	0.	0.	0.	2.	27.	0.	33.	0.
	SOURCE IMAGE DATA	317.	116.	70.	63.	7.	26.	3.	27.	116.	33.	77.
		4.	7.	0.	2.	2.	66.	138.	1.	0.	13.	77481.
84 CDR001AS	CHANGE DATA	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	SOURCE IMAGE DATA	13.	7.	5.	5.	1.	1.	1.	5.	7.	2.	2.
		1.	2.	0.	1.	6.	6.	0.	0.	0.	1.	209.

[illegible]

NADC-79163-50

MODULE NAME		CHANGE DATA SOURCE IMAGE DATA		RAW DATA										MODULES 97 TO 108										PAGE 9					
				TC NC GN-UR		DC PS N-UR		R-UR N-TR		CC R-TR LE-UR		NB-UR LE-TR		UC NR-TR GF-UR		B-UR GE-TR		KE B-TR AV-UR		D-UR AV-TR		KM D-TR ITE				AO-UR DOM		UT AO-TR DOU	
97	DAV001SB	CHANGE DATA	1.	190.	118.	65.	1.	11.	0.	17.	0.	64.	1.	1.	6.	0.	12.	0.	4.	0.	0.	11.	27.	65.	1.	15.	1.	1.	1.
	SOURCE IMAGE DATA		10.	14.	7.	15.						42.	0.	0.	0.	33.	60.	5.	0.	0.	5.	0.	0.	0.	0.	6.	4.	4420.	30.
98	DAW001SB	CHANGE DATA	0.	180.	114.	62.	0.	11.	0.	19.	0.	67.	1.	1.	4.	0.	10.	0.	4.	0.	9.	27.	62.	0.	0.	11.	11.	0.	0.
	SOURCE IMAGE DATA		7.	9.	6.	16.						43.	0.	0.	0.	25.	48.	5.	0.	0.	5.	0.	0.	0.	0.	6.	4.	45625.	22.
99	DCA001MC	CHANGE DATA	0.	160.	115.	41.	0.	8.	0.	10.	0.	38.	0.	0.	8.	0.	11.	0.	4.	0.	8.	22.	41.	0.	0.	11.	11.	0.	0.
	SOURCE IMAGE DATA		7.	7.	8.	9.						22.	0.	0.	0.	26.	38.	3.	0.	0.	3.	0.	1.	0.	1.	5.	16707.	22.	0.
100	DCR001SR	CHANGE DATA	0.	65.	48.	12.	0.	2.	0.	4.	0.	5.	0.	0.	3.	0.	4.	0.	3.	0.	0.	10.	4.	0.	0.	6.	6.	0.	0.
	SOURCE IMAGE DATA		3.	3.	1.	2.						4.	0.	0.	0.	10.	14.	1.	0.	0.	1.	0.	0.	0.	2.	2.	1004.	9.	0.
101	DCC001RW	CHANGE DATA	0.	113.	66.	42.	0.	9.	0.	11.	0.	42.	0.	0.	4.	0.	8.	0.	4.	0.	8.	19.	42.	0.	0.	13.	13.	0.	0.
	SOURCE IMAGE DATA		6.	7.	8.	11.						0.	0.	0.	0.	27.	35.	1.	0.	0.	1.	0.	0.	0.	2.	2.	13979.	17.	0.
102	DCC002RW	CHANGE DATA	0.	25.	20.	5.	0.	3.	0.	2.	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.	0.	4.	5.	0.	0.	3.	3.	0.	0.
	SOURCE IMAGE DATA		2.	2.	1.	1.						0.	0.	0.	0.	6.	6.	0.	0.	0.	0.	0.	0.	0.	1.	1.	123.	3.	0.
103	DCC003RW	CHANGE DATA	0.	27.	19.	8.	0.	4.	0.	4.	0.	6.	0.	0.	2.	0.	2.	0.	1.	0.	0.	7.	8.	0.	0.	3.	3.	0.	0.
	SOURCE IMAGE DATA		3.	4.	3.	3.						0.	0.	0.	0.	9.	10.	0.	0.	0.	0.	0.	0.	0.	1.	1.	447.	447.	0.
104	DCC004RW	CHANGE DATA	0.	24.	20.	4.	0.	4.	0.	1.	0.	4.	0.	0.	1.	0.	1.	0.	1.	0.	0.	3.	4.	0.	0.	3.	3.	0.	0.
	SOURCE IMAGE DATA		0.	0.	1.	1.						0.	0.	0.	0.	4.	4.	0.	0.	0.	0.	0.	0.	0.	1.	1.	62.	62.	0.
105	DCC005RW	CHANGE DATA	0.	26.	20.	6.	0.	4.	0.	2.	0.	6.	0.	0.	1.	0.	1.	0.	1.	0.	0.	4.	6.	0.	0.	3.	3.	0.	0.
	SOURCE IMAGE DATA		0.	0.	0.	1.						0.	0.	0.	0.	4.	6.	0.	0.	0.	0.	0.	0.	0.	1.	1.	104.	104.	0.
106	DCM001NS	CHANGE DATA	0.	70.	41.	24.	0.	4.	0.	4.	0.	6.	0.	0.	2.	0.	2.	0.	3.	0.	0.	9.	24.	0.	0.	5.	5.	0.	0.
	SOURCE IMAGE DATA		2.	2.	6.	18.						4.	0.	0.	0.	13.	27.	0.	0.	0.	0.	0.	0.	0.	1.	1.	2340.	2340.	0.
107	DCT001NS	CHANGE DATA	0.	75.	50.	20.	0.	4.	0.	6.	0.	14.	0.	0.	3.	0.	5.	0.	4.	0.	5.	13.	20.	0.	0.	5.	5.	0.	0.
	SOURCE IMAGE DATA		5.	7.	6.	8.						0.	0.	0.	0.	16.	23.	0.	0.	0.	0.	0.	0.	0.	1.	1.	3458.	3458.	0.
108	DCM001NS	CHANGE DATA	0.	100.	69.	25.	0.	2.	0.	8.	0.	13.	0.	0.	4.	0.	7.	0.	3.	0.	7.	15.	25.	0.	0.	12.	12.	0.	0.
	SOURCE IMAGE DATA		0.	0.	0.	11.						0.	0.	0.	0.	22.	33.	3.	0.	0.	3.	0.	0.	0.	4.	4.	5394.	5394.	0.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 121 TO 132										PAGE 11	
		TC NC GN-UR	NCM GN-TR	DC PS N-UP	R-UR N-TR	CC R-TR LE-UR	NR-UR LE-TR	UC NR-TR GE-UR	B-UR GE-TR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AD-UR DOM	UT AD-TR DOU	LN-UR MN	PE LN-TR PC							
121	DFS001NS CHANGE DATA SOURCE IMAGE DATA	3. 210. 2.	153. 2.	3. 48. 7.	7. 12.	0. 45. 0.	13. 0.	0. 28. 1.	7. 3.	3. 9. 24.	4. 46.	0. 11. 6.	24. 0.	0. 48. 1.	14. 8.	3. 31. 28308.							
122	DGR001SR CHANGE DATA SOURCE IMAGE DATA	0. 75. 6.	56. 7.	0. 15. 1.	4. 3.	0. 13. 0.	7. 0.	0. 9. 0.	2. 0.	0. 11.	2. 16.	0. 0.	11. 0.	0. 15. 0.	4. 1.	0. 2199.							
123	DMR001NS CHANGE DATA SOURCE IMAGE DATA	0. 68. 2.	51. 3.	0. 12. 1.	2. 3.	0. 4. 0.	2. 0.	0. 2. 0.	2. 0.	0. 11.	2. 14.	0. 0.	6. 0.	0. 12. 0.	8. 1.	0. 8. 529.							
124	DMBAHJNS CHANGE DATA SOURCE IMAGE DATA	0. 124. 6.	86. 10.	0. 38. 3.	5. 6.	0. 17. 2.	6. 2.	0. 9. 0.	6. 0.	0. 11.	2. 43.	18. 4.	14. 0.	0. 38. 0.	12. 5.	0. 25. 7927.							
125	DMBCM3NS CHANGE DATA SOURCE IMAGE DATA	0. 50. 3.	34. 3.	0. 14. 4.	5. 5.	0. 10. 1.	8. 1.	0. 10. 0.	2. 0.	0. 13.	2. 16.	2. 0.	12. 0.	0. 14. 0.	5. 1.	0. 7. 1701.							
126	DMRRH2NS CHANGE DATA SOURCE IMAGE DATA	0. 58. 3.	48. 4.	0. 10. 3.	3. 4.	0. 7. 0.	5. 0.	0. 6. 0.	2. 0.	0. 10.	1. 12.	0. 0.	8. 0.	0. 10. 0.	4. 1.	0. 4. 745.							
127	DIA001NS CHANGE DATA SOURCE IMAGE DATA	0. 535. 13.	359. 24.	0. 168. 16.	10. 58.	0. 143. 5.	22. 6.	0. 110. 3.	10. 3.	0. 33. 71.	4. 167.	25. 18.	36. 0.	0. 168. 1.	32. 20.	0. 76. 250906.							
128	DTH001NS CHANGE DATA SOURCE IMAGE DATA	0. 315. 8.	221. 13.	0. 89. 12.	8. 32.	0. 60. 3.	22. 3.	0. 55. 1.	10. 1.	0. 19. 42.	4. 92.	15. 11.	36. 0.	0. 89. 1.	18. 13.	0. 42. 103856.							
129	DTM001NS CHANGE DATA SOURCE IMAGE DATA	0. 325. 9.	226. 9.	0. 93. 14.	9. 37.	0. 80. 1.	23. 3.	0. 58. 1.	8. 1.	0. 20. 46.	4. 98.	15. 11.	35. 0.	0. 93. 1.	21. 13.	0. 48. 99640.							
130	DMA001NS CHANGE DATA SOURCE IMAGE DATA	3. 145. 6.	78. 9.	1. 44. 11.	8. 15.	2. 31. 0.	11. 0.	0. 24. 0.	6. 0.	0. 9. 31.	4. 51.	11. 2.	21. 0.	3. 44. 0.	14. 7.	3. 27. 16431.							
131	DMR001NS CHANGE DATA SOURCE IMAGE DATA	0. 66. 3.	50. 3.	0. 10. 1.	2. 1.	0. 4. 0.	2. 0.	0. 2. 0.	2. 0.	0. 11.	2. 11.	0. 0.	6. 0.	0. 10. 0.	7. 1.	0. 7. 368.							
132	DMRAWJNS CHANGE DATA SOURCE IMAGE DATA	0. 62. 3.	51. 3.	0. 11. 3.	2. 3.	0. 4. 0.	2. 0.	0. 2. 0.	4. 0.	0. 6. 12.	2. 15.	0. 2.	8. 0.	0. 11. 0.	6. 3.	0. 9. 726.							

MODULE NAME		CHANGE DATA		RAW DATA										MODULES 133 TO 144										PAGE 12										
SOURCE IMAGE DATA		SOURCE IMAGE DATA		-----																														
TC	NC	DC	PS	NCM	CC	UC	KE	XM	AD-TR	UT	LN-UR	PE	GN-UR	GN-TP	N-UR	R-UR	H-TR	LF-UR	LE-TR	NR-TP	RE-UR	GF-TR	H-TR	AV-UR	D-UR	O-TR	ITF	DDM	AD-TR	LN-UR	WN	LN-TR	PC	
113	DMAMP2NS	0.	52.	42.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
	SOURCE IMAGE DATA	3.	4.	4.	3.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	12.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	1.	745.	
114	DMAMP3NS	1.	205.	134.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	7.	13.	75.	10.	45.	0.	0.	0.	1.	17.	3.	6.	20.	0.	0.	11.	11.	20.	
	SOURCE IMAGE DATA	14.	20.	20.	8.	8.	23.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.	34.	64.	4.	0.	0.	0.	0.	0.	0.	37136.		
115	DMAMP4NS	0.	445.	322.	0.	0.	12.	113.	0.	0.	0.	0.	0.	0.	0.	9.	27.	0.	22.	68.	0.	0.	0.	0.	4.	23.	35.	118.	0.	0.	30.	0.	74.	
	SOURCE IMAGE DATA	7.	12.	12.	13.	35.	35.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	121.	15.	0.	0.	50.	121.	15.	0.	0.	2.	18.	153442.			
116	DMAMP5NS	0.	150.	108.	0.	0.	4.	16.	0.	0.	0.	0.	0.	0.	0.	6.	16.	0.	6.	9.	0.	0.	0.	0.	3.	14.	15.	19.	0.	0.	15.	0.	29.	
	SOURCE IMAGE DATA	9.	11.	11.	5.	6.	6.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	48.	6.	0.	0.	31.	48.	6.	0.	0.	0.	0.	7.	7972.		
117	DMAMP6NS	0.	127.	87.	0.	0.	4.	12.	0.	0.	0.	0.	0.	0.	0.	5.	7.	0.	8.	10.	0.	0.	0.	0.	3.	18.	16.	35.	0.	0.	9.	0.	17.	
	SOURCE IMAGE DATA	8.	16.	16.	3.	4.	4.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	38.	1.	0.	0.	21.	38.	1.	0.	1.	0.	3.	0.	7286.		
118	DMAMP7NS	0.	38.	29.	0.	0.	3.	6.	0.	0.	0.	0.	0.	0.	0.	2.	2.	0.	5.	0.	0.	0.	0.	0.	2.	0.	9.	0.	0.	4.	0.	5.	0.	
	SOURCE IMAGE DATA	3.	3.	3.	4.	4.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	12.	0.	0.	11.	12.	0.	0.	0.	0.	0.	1.	0.	707.		
119	DMAMP8NS	0.	520.	360.	0.	0.	11.	110.	0.	0.	0.	0.	0.	0.	0.	10.	48.	0.	17.	68.	0.	0.	0.	0.	4.	37.	31.	153.	0.	0.	38.	0.	92.	
	SOURCE IMAGE DATA	23.	29.	29.	10.	35.	35.	3.	5.	0.	0.	0.	0.	0.	0.	0.	74.	161.	181.	161.	18.	0.	0.	74.	161.	18.	0.	4.	143696.	23.	143696.			
120	DMAMP9NS	0.	190.	124.	0.	0.	9.	59.	0.	0.	0.	0.	0.	0.	0.	7.	18.	0.	12.	36.	0.	0.	0.	0.	4.	9.	23.	63.	0.	0.	13.	0.	26.	
	SOURCE IMAGE DATA	11.	16.	16.	9.	14.	14.	0.	0.	0.	0.	0.	0.	0.	0.	0.	33.	56.	0.	56.	4.	0.	0.	33.	56.	4.	0.	0.	0.	5.	0.	33755.		
121	DMAMP10NS	0.	130.	85.	0.	0.	6.	38.	0.	0.	0.	0.	0.	0.	0.	3.	3.	0.	13.	21.	0.	0.	0.	0.	4.	14.	20.	38.	0.	0.	12.	0.	22.	
	SOURCE IMAGE DATA	4.	4.	4.	7.	12.	12.	0.	0.	0.	0.	0.	0.	0.	0.	0.	23.	38.	38.	38.	1.	0.	0.	23.	38.	1.	0.	1.	3.	0.	16774.			
122	DMAMP11NS	0.	80.	54.	0.	0.	5.	17.	0.	0.	0.	0.	0.	0.	0.	4.	5.	0.	10.	11.	0.	0.	0.	0.	4.	6.	18.	0.	0.	7.	0.	12.	0.	
	SOURCE IMAGE DATA	6.	6.	6.	4.	6.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	17.	24.	24.	24.	1.	0.	0.	17.	24.	1.	0.	0.	0.	2.	0.	5424.		
123	DMAMP12NS	0.	165.	121.	0.	0.	6.	36.	0.	0.	0.	0.	0.	0.	0.	4.	7.	0.	13.	21.	0.	0.	0.	0.	4.	9.	21.	37.	0.	0.	11.	0.	9.	
	SOURCE IMAGE DATA	4.	4.	4.	4.	7.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.	19.	34.	34.	34.	5.	0.	0.	19.	34.	5.	0.	0.	0.	6.	0.	11.	0.	6.
124	DMAMP13NS	0.	90.	63.	0.	0.	5.	8.	0.	0.	0.	0.	0.	0.	0.	5.	8.	0.	7.	7.	0.	0.	0.	0.	3.	4.	15.	19.	0.	0.	2.	0.	10.	
	SOURCE IMAGE DATA	7.	7.	7.	5.	5.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	19.	23.	23.	23.	1.	0.	0.	19.	23.	1.	0.	0.	0.	2.	0.	2560.		

MODULE NAME		CHANGE DATA		RAW DATA												MODULES 145 TO 156												PAGE 17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				TC				NCM				DC				R-UR				CC				NR-UR						UC				R-UR				KE				D-UR				KM				AD-UR				AO-TR				UT				LN-UR				LN-TR				PC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				GN-UR				GN-TR				N-UR				N-TR				LE-UR				LE-TR				GE-UR				GE-TR				AV-UR				AV-TR				ITE				DOU				MM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
145	DST001NS	CHANGE DATA		0.	116.	3.	80.	3.	5.	7.	7.	0.	17.	1.	1.	0.	11.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

1. <https://doi.org/10.1016/j.jmb.2019.04.001>

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 169 TO 180										PAGE 15	
		TC NC GN-UR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UR	NR-UR LE-TR	UC NR-TR GE-UR	B-UR GE-TR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AO-UR DOU	UT AO-TR OUI	LN-UR MN	PE L1-TR PC								
169	D7X001CS CHANGE DATA SOURCE IMAGE DATA	2. 530. 17.	352. 28.	2. 171. 10.	13. 49.	0. 161. 1.	19. 2.	0. 99. 1.	10. 2.	51. 62.	4. 161.	21. 17.	0.	33. 23.	171. 5.	33. 23.	80. 235909.						
170	D7Z001CS CHANGE DATA SOURCE IMAGE DATA	1. 415. 14.	304. 21.	0. 105. 8.	11. 26.	1. 94. 1.	15. 1.	0. 57. 1.	9. 1.	33. 46.	4. 98.	15. 10.	28. 0.	105. 5.	22. 16.	49. 89769.							
171	FCA001SR CHANGE DATA SOURCE IMAGE DATA	1. 275. 16.	142. 27.	0. 127. 10.	11. 27.	1. 154. 0.	21. 0.	0. 95. 1.	8. 2.	17. 45.	4. 98.	15. 7.	33. 0.	127. 0.	18. 8.	42. 182232.							
172	FCR001SB CHANGE DATA SOURCE IMAGE DATA	2. 70. 6.	44. 6.	1. 21. 5.	4. 6.	0. 16. 0.	8. 0.	1. 10. 0.	4. 0.	5. 18.	4. 24.	6. 1.	16. 0.	21. 0.	7. 2.	12. 4656.							
173	FCC001SB CHANGE DATA SOURCE IMAGE DATA	1. 90. 9.	62. 9.	1. 24. 4.	7. 5.	0. 18. 0.	6. 0.	0. 11. 2.	5. 2.	0. 21.	3. 25.	4. 2.	14. 0.	24. 0.	6. 3.	9. 3884.							
174	FCD001SR CHANGE DATA SOURCE IMAGE DATA	1. 165. 12.	85. 16.	0. 77. 7.	9. 14.	1. 103. 0.	18. 0.	0. 60. 0.	6. 0.	8. 30.	4. 51.	9. 3.	28. 0.	77. 0.	11. 4.	21. 77465.							
175	FCG001SB CHANGE DATA SOURCE IMAGE DATA	2. 50. 5.	33. 5.	1. 13. 3.	4. 4.	0. 10. 0.	4. 0.	1. 7. 0.	2. 0.	2. 11.	3. 14.	4. 0.	9. 0.	13. 0.	3. 1.	5. 1221.							
176	FCP001SB CHANGE DATA SOURCE IMAGE DATA	1. 70. 6.	50. 6.	1. 16. 1.	4. 4.	0. 8. 0.	5. 0.	0. 5. 0.	3. 0.	6. 13.	3. 19.	5. 1.	11. 0.	16. 0.	6. 2.	9. 1806.							
177	FCP001SR CHANGE DATA SOURCE IMAGE DATA	2. 300. 17.	187. 23.	2. 107. 16.	14. 27.	0. 88. 0.	16. 0.	0. 56. 2.	11. 2.	30. 64.	3. 110.	21. 10.	30. 0.	107. 0.	29. 11.	66. 83758.							
178	FCS001SR CHANGE DATA SOURCE IMAGE DATA	1. 245. 19.	150. 23.	1. 86. 16.	9. 28.	0. 68. 0.	17. 0.	0. 47. 0.	9. 0.	24. 56.	3. 97.	15. 7.	29. 0.	86. 0.	21. 8.	46. 60546.							
179	FCT001SB CHANGE DATA SOURCE IMAGE DATA	0. 120. 9.	71. 14.	0. 43. 10.	7. 18.	0. 43. 0.	12. 0.	0. 29. 0.	5. 0.	7. 27.	4. 46.	7. 2.	21. 0.	43. 0.	8. 3.	14. 20975.							
180	FCU001SB CHANGE DATA SOURCE IMAGE DATA	2. 370. 14.	229. 24.	2. 137. 14.	11. 24.	0. 113. 1.	19. 1.	0. 61. 5.	10. 11.	1. 73.	4. 155.	30. 17.	33. 0.	137. 0.	39. 18.	95. 146479.							

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 181 TO 192										PAGE 14	
		TC GN-UR	NCM GN-TR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UP	NR-UR LE-TR	UC NR-TP GE-UP	H-UR GE-TR	KE R-TR AV-UR	D-UR AV-TR	KW D-TR ITE	AO-UR DOU	UT AO-TR DOU	LN-UR MN	PE LN-TR PC							
181 FCUHL1SR	CHANGE DATA SOURCE IMAGE DATA	0. 92. 2.	57. 4.	0. 35. 4.	7. 8.	0. 35. 0.	13. 0.	0. 21. 0.	5. 0.	0. 17.	2. 36.	0. 5. 3.	20. 0.	35. 0.	6. 35. 0.	11. 4.	0. 24. 17120.						
182 FCIMS1SR	CHANGE DATA SOURCE IMAGE DATA	0. 193. 9.	119. 14.	0. 73. 6.	9. 15.	0. 60. 0.	15. 0.	0. 35. 2.	7. 3.	0. 36.	2. 78.	0. 14. 8.	24. 0.	73. 0.	0. 0.	19. 9.	0. 46. 47431.						
183 FCUPS1SR	CHANGE DATA SOURCE IMAGE DATA	0. 185. 6.	122. 12.	0. 63. 5.	10. 7.	0. 56. 1.	8. 1.	0. 28. 5.	7. 12.	0. 34.	2. 71.	0. 7. 12.	17. 0.	63. 0.	0. 0.	17. 8.	0. 39. 27646.						
184 FDR001PR	CHANGE DATA SOURCE IMAGE DATA	2. 290. 7.	197. 9.	1. 88. 12.	14. 33.	1. 73. 0.	19. 0.	0. 50. 0.	8. 0.	1. 22.	3. 95.	0. 16. 12.	30. 0.	88. 1.	1. 1.	23. 14.	2. 53. 74011.						
185 FDS001PR	CHANGE DATA SOURCE IMAGE DATA	2. 280. 14.	169. 20.	2. 105. 14.	13. 35.	0. 95. 0.	16. 0.	0. 63. 0.	7. 0.	1. 25.	3. 110.	0. 8. 0.	26. 0.	105. 2.	1. 25.	26. 11.	55. 80632.						
186 FDT001PR	CHANGE DATA SOURCE IMAGE DATA	0. 95. 6.	53. 9.	0. 37. 9.	9. 16.	0. 31. 0.	9. 0.	0. 23. 0.	4. 0.	0. 24.	3. 40.	0. 7. 2.	16. 0.	37. 0.	0. 0.	9. 3.	0. 15. 10437.						
187 FPA001CS	CHANGE DATA SOURCE IMAGE DATA	4. 145. 7.	90. 7.	2. 49. 14.	13. 18.	2. 45. 1.	17. 1.	0. 28. 1.	5. 1.	2. 37.	4. 51.	1. 13. 2.	26. 0.	49. 1.	1. 1.	14. 4.	3. 24. 22612.						
188 FPC001CS	CHANGE DATA SOURCE IMAGE DATA	1. 85. 9.	61. 9.	1. 20. 4.	9. 4.	0. 15. 0.	5. 0.	0. 9. 0.	4. 0.	0. 18.	3. 19.	0. 3. 1.	12. 0.	20. 0.	1. 0.	5. 2.	1. 6. 2156.						
189 FPD001CS	CHANGE DATA SOURCE IMAGE DATA	1. 75. 2.	51. 2.	1. 20. 5.	7. 7.	0. 18. 1.	10. 1.	0. 12. 0.	3. 0.	0. 14.	4. 19.	0. 5. 1.	17. 0.	20. 0.	1. 0.	6. 2.	1. 9. 4480.						
190 FPL001CS	CHANGE DATA SOURCE IMAGE DATA	3. 280. 7.	180. 8.	1. 95. 15.	13. 28.	2. 95. 1.	24. 1.	0. 58. 1.	9. 1.	2. 43.	5. 91.	1. 20. 8.	38. 0.	95. 0.	0. 0.	24. 9.	53. 107923.						
191 FPM001CS	CHANGE DATA SOURCE IMAGE DATA	0. 175. 8.	124. 7.	0. 48. 4.	10. 10.	0. 35. 0.	8. 0.	0. 20. 0.	9. 0.	0. 25.	3. 50.	0. 10. 8.	20. 0.	48. 0.	0. 0.	15. 9.	0. 33. 18674.						
192 FPN001CS	CHANGE DATA SOURCE IMAGE DATA	2. 230. 7.	153. 8.	2. 73. 9.	12. 22.	0. 59. 1.	12. 1.	0. 37. 1.	10. 1.	2. 41.	4. 84.	0. 16. 8.	26. 0.	73. 1.	0. 1.	23. 10.	2. 52. 47759.						

MODULE NAME		CHANGE DATA		SOURCE IMAGE DATA		MODULES 193 TO 204										PAGE 17													
MODULE NAME	GN-UR	TC NC	GN-TR	NCH	DC	PS	R-UR	N-TR	LE-UR	R-TR	CC	NB-UR	NR-UR	GE-UR	R-UR	B-TR	KE	D-UR	D-TR	ITF	DOW	AO-UR	DOU	UT	LN-UR	MN	LN-TR	PC	
193 FPP001CS	1.	50.	4.	36.	11.	2.	3.	2.	0.	0.	0.	3.	0.	0.	0.	2.	5.	0.	3.	0.	0.	8.	11.	1.	1.	1.	1.	1.	
SOURCE IMAGE DATA																													
194 FPR001MC	2.	60.	2.	40.	13.	4.	3.	5.	0.	9.	2.	4.	7.	0.	0.	2.	0.	0.	3.	0.	0.	9.	13.	2.	7.	9.	2.	705.	
SOURCE IMAGE DATA																													
195 FPS001CS	1.	195.	17.	121.	70.	11.	13.	18.	0.	0.	0.	14.	43.	0.	0.	7.	19.	0.	3.	8.	24.	70.	1.	14.	5.	1.	1.	1.	
SOURCE IMAGE DATA																													
196 FPT001CS	0.	95.	5.	59.	32.	10.	7.	15.	0.	31.	0.	12.	21.	0.	0.	4.	5.	0.	4.	6.	20.	32.	0.	7.	11.	0.	11.	0.	
SOURCE IMAGE DATA																													
197 FPU001CS	1.	160.	9.	108.	48.	10.	11.	11.	0.	43.	0.	17.	25.	0.	0.	7.	12.	0.	4.	11.	28.	48.	1.	14.	14.	27.	24382.	1.	
SOURCE IMAGE DATA																													
198 FPV001MC	1.	75.	3.	49.	20.	5.	5.	6.	0.	17.	1.	10.	11.	0.	1.	4.	5.	0.	4.	4.	18.	20.	1.	8.	2.	12.	5031.	1.	
SOURCE IMAGE DATA																													
199 FPX001MC	0.	215.	2.	143.	67.	15.	11.	27.	0.	67.	4.	21.	42.	0.	0.	7.	12.	0.	4.	13.	32.	67.	0.	21.	7.	0.	42.	58105.	
SOURCE IMAGE DATA																													
200 FPZ001CS	0.	65.	3.	43.	15.	3.	8.	3.	0.	11.	0.	2.	6.	0.	0.	4.	6.	0.	3.	3.	9.	15.	0.	6.	2.	0.	8.	1093.	
SOURCE IMAGE DATA																													
201 FRN001PZ	6.	130.	8.	65.	62.	15.	14.	25.	1.	71.	1.	16.	47.	0.	5.	5.	9.	4.	4.	6.	25.	62.	1.	8.	3.	13.	36887.	5.	
SOURCE IMAGE DATA																													
202 FRC001PZ	4.	210.	17.	133.	70.	8.	14.	9.	1.	71.	0.	20.	43.	0.	5.	7.	3.	3.	3.	8.	31.	70.	1.	13.	7.	4.	27.	49210.	
SOURCE IMAGE DATA																													
203 FRD001PZ	5.	175.	9.	94.	76.	12.	13.	25.	0.	73.	0.	15.	49.	0.	5.	6.	3.	4.	11.	26.	0.	76.	1.	13.	6.	28.	52999.	4.	
SOURCE IMAGE DATA																													
204 FRP001PZ	0.	35.	2.	23.	5.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	2.	5.	4.	0.	0.	0.	3.	0.	73.	0.	
SOURCE IMAGE DATA																													

MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 205 TO 216										PAGE 14	
		TC NC GN-UR	DC PS N-UP	R-UR N-TR	CC R-TR LE-UR	NR-UR LE-TR	UC NR-TR GE-UR	R-UP GE-TR	KE R-TR AV-UR	D-UP AV-TR	KM D-TR ITF	AO-UP DOW	UT DOW	LN-UP MN	PE LN-TR PC								
205 FRS001PZ	CHANGE DATA	170. 15.	102. 17.	1. 12.	63. 19.	10. 19.	0. 0.	0. 2.	37. 2.	7. 2.	17. 44.	0. 3.	9. 67.	22. 0.	1. 0.	15. 5.	1. 29009.						
206 FRT001P7	CHANGE DATA	130. 8.	76. 12.	2. 12.	7. 22.	46. 0.	1. 0.	0. 32.	0. 30.	5. 0.	8. 28.	4. 48.	7. 2.	24. 0.	0. 0.	8. 3.	14. 26732.						
207 FRU001PZ	CHANGE DATA	500. 16.	325. 26.	4. 18.	14. 51.	159. 0.	2. 0.	0. 102.	102. 0.	12. 0.	41. 68.	4. 163.	26. 19.	45. 0.	0. 0.	34. 20.	5. 303181.						
208 FUT001TR	CHANGE DATA	576. 4.	387. 5.	1. 30.	14. 80.	120. 10.	0. 12.	0. 26.	0. 12.	12. 0.	35. 92.	4. 214.	60. 18.	42. 1.	0. 2.	48. 22.	0. 246157.						
209 FUT01TR	CHANGE DATA	114. 0.	89. 0.	1. 5.	6. 10.	9. 3.	0. 3.	0. 0.	15. 0.	3. 0.	5. 20.	2. 32.	5. 2.	13. 0.	1. 2.	12. 5.	1. 5122.						
210 FVA001MC	CHANGE DATA	375. 11.	233. 13.	1. 20.	12. 36.	149. 4.	1. 4.	0. 25.	87. 0.	11. 0.	25. 69.	4. 135.	27. 8.	40. 0.	2. 3.	34. 12.	2. 205229.						
211 FVC001MC	CHANGE DATA	130. 11.	87. 11.	1. 5.	12. 8.	40. 0.	0. 0.	0. 9.	24. 5.	5. 5.	10. 28.	3. 36.	5. 3.	17. 0.	1. 0.	7. 4.	1. 10833.						
212 FVD001MC	CHANGE DATA	1. 80.	50. 4.	1. 7.	7. 8.	21. 2.	0. 2.	0. 14.	0. 0.	4. 0.	0. 22.	4. 28.	6. 1.	16. 0.	1. 0.	9. 2.	1. 5419.						
213 FVP001MC	CHANGE DATA	1. 55.	38. 3.	1. 2.	3. 2.	5. 0.	0. 0.	0. 3.	0. 0.	2. 0.	0. 9.	3. 11.	3. 0.	8. 0.	1. 0.	4. 1.	6. 661.						
214 FVS001MC	CHANGE DATA	190. 16.	119. 18.	1. 12.	9. 19.	58. 0.	0. 0.	0. 12.	37. 2.	7. 2.	18. 45.	3. 68.	9. 4.	22. 0.	1. 0.	15. 5.	1. 30469.						
215 FVT001MC	CHANGE DATA	0. 100.	63. 8.	0. 9.	7. 14.	31. 0.	0. 0.	0. 12.	21. 0.	4. 0.	5. 21.	4. 33.	5. 1.	20. 0.	0. 0.	7. 2.	0. 12127.						
216 FVU001MC	CHANGE DATA	4. 520.	346. 26.	4. 14.	12. 39.	162. 0.	0. 0.	0. 27.	96. 0.	12. 0.	47. 68.	4. 162.	26. 20.	43. 0.	1. 0.	40. 21.	4. 298028.						

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MODULE NAME	CHANGE DATA SOURCE IMAGE DATA	RAW DATA -----										MODULES 217 TO 228										PAGE 10	
		TC NC GN-UR	NCM GN-TR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UP	NR-UR LE-TR	UC NR-TR GE-UR	R-UR GE-TR	KE B-TR AV-UR	D-UR AV-TR	KW D-TR 11F	AO-UP DOM	UT AO-TR DOU	LN-UR MN	PE LN-TR PC							
217 HARD01R	CHANGE DATA	7.	61.	1.	8.	6.	17.	0.	3.	6.	1.	23.	0.	0.	6.	6.							
	SOURCE IMAGE DATA	95.	5.	29.	11.	30.	0.	0.	0.	4.	25.	4.	0.	29.	6.	9.							
218 HFF001R	CHANGE DATA	0.	46.	0.	7.	0.	8.	0.	5.	0.	0.	16.	0.	0.	8.	0.							
	SOURCE IMAGE DATA	75.	4.	24.	9.	20.	0.	13.	0.	21.	25.	5.	0.	24.	2.	12.							
219 HFI001R	CHANGE DATA	2.	34.	2.	7.	0.	6.	0.	2.	1.	1.	10.	0.	0.	1.	4843.							
	SOURCE IMAGE DATA	55.	3.	13.	6.	12.	0.	8.	0.	12.	12.	2.	0.	13.	3.	135.							
220 HFR001R	CHANGE DATA	1.	67.	0.	5.	1.	10.	0.	3.	0.	1.	16.	0.	0.	6.	0.							
	SOURCE IMAGE DATA	90.	4.	20.	9.	18.	0.	13.	0.	17.	22.	4.	0.	20.	3.	4580.							
221 HFO001R	CHANGE DATA	1.	56.	1.	7.	0.	5.	0.	5.	1.	0.	13.	0.	0.	6.	1.							
	SOURCE IMAGE DATA	80.	5.	21.	6.	15.	0.	9.	0.	8.	20.	1.	0.	21.	2.	2765.							
222 HLG001R	CHANGE DATA	1.	32.	0.	7.	1.	4.	0.	3.	1.	0.	9.	0.	0.	3.	1.							
	SOURCE IMAGE DATA	50.	3.	11.	4.	0.	0.	6.	0.	9.	10.	2.	0.	11.	1.	744.							
223 HMC001R	CHANGE DATA	1.	38.	1.	5.	0.	5.	0.	3.	1.	0.	11.	0.	0.	5.	1.							
	SOURCE IMAGE DATA	55.	3.	13.	5.	6.	0.	5.	0.	12.	14.	1.	0.	13.	2.	6.							
224 MOD001R	CHANGE DATA	1.	32.	1.	6.	0.	8.	0.	3.	2.	1.	13.	0.	0.	3.	0.							
	SOURCE IMAGE DATA	50.	3.	15.	8.	13.	0.	10.	0.	13.	14.	0.	0.	15.	1.	1940.							
225 H0J001SR	CHANGE DATA	3.	186.	1.	13.	2.	23.	0.	10.	3.	0.	36.	0.	0.	30.	3.							
	SOURCE IMAGE DATA	325.	15.	30.	53.	121.	3.	86.	1.	69.	131.	9.	0.	133.	11.	146580.							
226 HSC001R	CHANGE DATA	5.	241.	3.	13.	2.	20.	0.	9.	4.	1.	32.	0.	0.	24.	4.							
	SOURCE IMAGE DATA	355.	14.	17.	44.	89.	0.	65.	2.	50.	119.	12.	0.	111.	14.	59.							
227 HSR001SR	CHANGE DATA	2.	156.	2.	10.	0.	20.	0.	7.	0.	2.	30.	0.	0.	27.	0.							
	SOURCE IMAGE DATA	255.	17.	17.	25.	62.	0.	44.	1.	54.	108.	9.	0.	93.	10.	65.							
228 HUC001SR	CHANGE DATA	2.	196.	1.	13.	1.	18.	0.	10.	1.	1.	31.	0.	0.	23.	1.							
	SOURCE IMAGE DATA	10.	19.	13.	36.	88.	0.	59.	2.	47.	112.	8.	0.	104.	10.	55.							

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RAW DATA

MODULES 241 70 252

MODULF NAME	CHANGE DATA SOURCE IMAGE DATA	IC NC GN-UR	NCM GN-TR	DC PS N-UR	R-UR N-TR	CC R-TR LE-UR	UC NB-TP GE-UR	GE-TR	R-UR GE-TR	KE B-TR AV-UR	D-UR AV-TR	KM D-TR ITE	AO-UR DOU	UT AO-TR DOU	LN-UR MN	PE LN-TR DC
241 KLS001MC	CHANGE DATA SOURCE IMAGE DATA	0. 195. 5.	139. 9.	0. 51. 7.	7. 19.	0. 4. 0.	0. 33. 0.	0.	6. 0.	0. 10. 25.	4. 55.	0. 8. 4.	26. 0.	0. 51. 1.	13. 6.	0. 27. 35935.
242 KOR001MC	CHANGE DATA SOURCE IMAGE DATA	0. 60. 3.	40. 3.	0. 16. 6.	7. 7.	0. 15. 0.	0. 10. 0.	0.	3. 0.	0. 3. 13.	3. 15.	0. 3. 0.	14. 0.	0. 16. 0.	4. 1.	0. 5. 2457.
243 KPO001MC	CHANGE DATA SOURCE IMAGE DATA	0. 245. 2.	179. 4.	0. 60. 7.	6. 22.	0. 52. 0.	0. 36. 0.	0.	7. 0.	0. 11. 25.	4. 65.	0. 13. 5.	25. 1.	0. 60. 2.	16. 9.	0. 39. 48494.
244 KPP001MC	CHANGE DATA SOURCE IMAGE DATA	0. 50. 2.	33. 3.	0. 11. 3.	1. 4.	0. 9. 1.	0. 8. 0.	0.	1. 0.	0. 10. 12.	2. 0.	0. 2. 0.	9. 0.	0. 11. 0.	4. 1.	0. 4. 1188.
245 KPR001MC	CHANGE DATA SOURCE IMAGE DATA	3. 130. 6.	88. 6.	2. 38. 10.	8. 14.	1. 26. 0.	0. 19. 0.	0.	6. 0.	2. 9. 29.	3. 45.	0. 10. 4.	20. 0.	1. 38. 0.	13. 5.	3. 25. 12200.
246 KPU001MC	CHANGE DATA SOURCE IMAGE DATA	0. 290. 7.	203. 32.	0. 83. 6.	4. 18.	0. 50. 0.	0. 14. 0.	0.	5. 0.	0. 22. 34.	4. 96.	0. 11. 8.	23. 0.	0. 83. 0.	21. 9.	0. 46. 60008.
247 KRC001MC	CHANGE DATA SOURCE IMAGE DATA	1. 60. 0.	36. 0.	0. 17. 8.	3. 10.	1. 0.	0. 13. 0.	0.	1. 0.	0. 12.	3. 16.	1. 3. 0.	15. 0.	0. 17. 0.	4. 1.	0. 6. 4254.
248 KSD001MC	CHANGE DATA SOURCE IMAGE DATA	4. 260. 10.	183. 11.	3. 73. 14.	12. 25.	1. 52. 0.	0. 36. 0.	0.	10. 0.	0. 22. 46.	3. 84.	0. 15. 8.	26. 0.	4. 73. 1.	22. 10.	4. 48. 40725.
249 KSL001MC	CHANGE DATA SOURCE IMAGE DATA	0. 70. 3.	48. 4.	0. 16. 5.	5. 7.	0. 11. 0.	0. 9. 0.	0.	3. 0.	0. 13.	3. 17.	0. 3. 0.	10. 0.	0. 16. 1.	5. 2.	0. 6. 1645.
250 KSP001MC	CHANGE DATA SOURCE IMAGE DATA	2. 180. 10.	119. 13.	1. 56. 7.	10. 13.	1. 49. 0.	0. 29. 0.	0.	7. 0.	0. 32.	3. 55.	0. 9. 4.	20. 0.	2. 56. 0.	15. 5.	2. 29. 23590.
251 KSR001MC	CHANGE DATA SOURCE IMAGE DATA	4. 485. 18.	295. 31.	3. 185. 23.	14. 77.	1. 176. 7.	0. 134. 0.	0.	11. 0.	3. 28. 82.	4. 193.	0. 23. 9.	43. 1.	1. 185. 3.	34. 14.	4. 77. 325926.
252 KSD001MC	CHANGE DATA SOURCE IMAGE DATA	0. 115. 2.	63. 5.	0. 28. 5.	3. 10.	0. 17. 0.	0. 15. 0.	0.	4. 0.	0. 18.	4. 36.	0. 6. 3.	16. 0.	0. 28. 0.	11. 4.	0. 21. 8520.

[illegible]

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MODULE NAME		CHANGE DATA SOURCE IMAGE DATA		RAW DATA										MODULES 265 TO 276										PAGE 23	
				TC		NCH		DC		R-UR		CC		UC		KE		KM		UT					
GN-UR	NC	GN-TR	NCN	N-UR	PS	R-UR	R-TR	LE-UR	LE-TR	NR-TR	GE-UR	B-UR	B-TR	AV-UR	B-TR	D-UR	D-TR	ITE	AO-UR	AO-TR	DOU	LN-TR	LN-TR	PC	
265	MDC001AK	CHANGE DATA	0.	0.	9.	1.	0.	0.	0.	0.	0.	0.	2.	0.	0.	2.	0.	0.	5.	0.	0.	0.	3.	200.	
266	MDE001PR	CHANGE DATA	5.	123.	51.	7.	48.	19.	33.	6.	3.	3.	6.	9.	28.	51.	13.	3.	26.	32022.	0.	0.	0.	0.	
267	MOW001RW	CHANGE DATA	0.	103.	48.	8.	35.	16.	29.	7.	11.	3.	8.	26.	48.	28.	26084.	0.	0.	0.	0.	0.	0.	0.	
268	HFN001PR	CHANGE DATA	0.	93.	42.	6.	33.	13.	26.	4.	0.	0.	3.	7.	20.	42.	13.	6.	19686.	0.	0.	0.	0.	0.	
269	MHC001PR	CHANGE DATA	55.	40.	11.	3.	4.	3.	3.	4.	0.	0.	3.	4.	10.	11.	7.	0.	10.	933.	0.	0.	0.	0.	
270	MHD001RW	CHANGE DATA	1.	118.	77.	8.	74.	16.	48.	8.	1.	19.	4.	10.	28.	77.	16.	7.	70595.	1.	0.	0.	0.	0.	
271	MHH001RW	CHANGE DATA	1.	40.	16.	5.	12.	5.	7.	4.	0.	3.	3.	3.	12.	16.	6.	2.	2015.	1.	0.	0.	0.	0.	
272	MHI001RW	CHANGE DATA	120.	58.	15.	9.	62.	16.	46.	3.	0.	3.	5.	22.	59.	8.	1.	0.	11.	32296.	0.	0.	0.	0.	
273	MHO001RW	CHANGE DATA	0.	27.	7.	3.	4.	3.	3.	2.	0.	2.	7.	0.	0.	3.	308.	0.	0.	0.	0.	0.	0.	0.	
274	MHR001RW	CHANGE DATA	0.	44.	20.	6.	16.	9.	11.	4.	0.	4.	5.	17.	20.	8.	0.	0.	12.	4720.	0.	0.	0.	0.	
275	MHS001RW	CHANGE DATA	385.	261.	119.	12.	100.	19.	66.	10.	0.	32.	4.	21.	33.	119.	27.	20.	137147.	0.	0.	0.	0.	0.	
276	MHT001RW	CHANGE DATA	1.	71.	37.	8.	30.	13.	19.	7.	1.	9.	4.	9.	24.	37.	11.	4.	1454.	1.	0.	0.	0.	0.	

MODULE NAME	CHANGE DATA		SOURCE IMAGE DATA		RAW DATA		MODULES										PAGE					
	GN-UR	NC-UR	NC	PS	DC	R-UR	R-TR	CC	NR-UR	NR-TR	UC	R-UR	R-TR	KE	D-UR	D-TR	AV-UR	AV-TR	UT	LN-UR	LN-TR	PC
277 MHI001RW	0.	45.	29.	9.	0.	1.	6.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
278 MHI001RW	1.	90.	53.	32.	1.	8.	32.	10.	21.	0.	0.	4.	0.	0.	0.	1.	5.	17.	32.	0.	7.	10.
279 MHI001RW	6.	6.	8.	10.	10.	13.	0.	0.	0.	0.	0.	0.	0.	0.	31.	1.	0.	0.	0.	2.	9145.	0.
280 MHI001RW	1.	220.	126.	13.	1.	12.	81.	16.	45.	0.	0.	10.	0.	0.	4.	12.	30.	89.	0.	17.	14.	0.
281 MHI001RW	3.	275.	117.	55.	3.	12.	41.	0.	0.	0.	0.	4.	0.	1.	9.	19.	0.	1.	1.	7.	75719.	0.
282 MHI001RW	9.	9.	11.	13.	13.	26.	0.	0.	1.	1.	1.	1.	0.	34.	61.	4.	0.	1.	55.	11.	23.	0.
283 MHI001RW	1.	520.	357.	158.	1.	11.	113.	16.	89.	0.	0.	7.	0.	0.	3.	24.	26.	158.	0.	35.	84.	0.
284 MHI001RW	17.	17.	28.	17.	17.	60.	0.	0.	0.	0.	0.	0.	0.	69.	172.	18.	0.	3.	158.	22.	138033.	0.
285 MHI001RW	1.	265.	180.	80.	1.	11.	76.	11.	52.	0.	0.	7.	0.	1.	3.	11.	21.	60.	0.	15.	1.	1.
286 MHI001RW	4.	4.	16.	11.	11.	23.	0.	0.	0.	0.	0.	0.	0.	30.	75.	4.	0.	0.	0.	5.	53188.	0.
287 MHI001RW	5.	263.	198.	70.	3.	11.	54.	18.	43.	0.	0.	6.	0.	3.	12.	27.	70.	1.	1.	16.	4.	0.
288 MHI001RW	4.	4.	5.	16.	16.	32.	0.	0.	0.	0.	0.	0.	0.	36.	73.	7.	0.	1.	1.	9.	36.	0.
289 MHI001RW	0.	0.	31.	12.	0.	4.	13.	4.	9.	0.	0.	2.	0.	0.	1.	7.	0.	0.	0.	1.	0.	0.
290 MHI001RW	1.	1.	1.	5.	5.	6.	0.	0.	0.	0.	0.	0.	0.	2.	10.	0.	0.	0.	3.	1.	3.	0.
291 MHI001RW	0.	0.	39.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	937.	0.
292 MHI001RW	1.	1.	1.	2.	2.	2.	0.	0.	0.	0.	0.	3.	0.	0.	1.	5.	0.	0.	0.	4.	0.	0.
293 MHI001RW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	7.	0.	0.	0.	0.	0.	1.	133.	0.
294 MHI001RW	155.	155.	5.	6.	6.	19.	23.	1.	0.	0.	0.	4.	0.	0.	4.	8.	13.	41.	0.	13.	26.	0.
295 MHI001RW	2.	2.	2.	12.	12.	32.	0.	0.	0.	0.	0.	0.	0.	22.	51.	4.	0.	0.	0.	5.	10584.	0.
296 MHI001RW	7.	325.	140.	178.	2.	7.	41.	11.	30.	0.	0.	6.	0.	1.	4.	139.	21.	178.	1.	22.	42.	0.
297 MHI001RW	23.	23.	128.	12.	12.	19.	2.	2.	0.	0.	0.	0.	0.	59.	191.	3.	0.	0.	0.	4.	97409.	0.
298 MHI001RW	0.	0.	38.	13.	0.	4.	9.	6.	0.	0.	0.	2.	0.	0.	4.	5.	12.	13.	0.	5.	0.	0.
299 MHI001RW	1.	1.	1.	4.	4.	6.	0.	0.	0.	0.	0.	0.	0.	10.	15.	0.	0.	0.	0.	1.	1789.	0.

MODULE NAME		CHANGE DATA SOURCE IMAGE DATA		RAW DATA -----										MODULES 289 TO 300										PAGE 24	
				TC GN-UR	NC	NCM GN-TR	OC PS N-UR	R-UR N-TR	CC R-TR LE-UP	NR-TR GE-UR	H-UP GF-TR	KE R-TR AV-UR	D-UP AV-TR	KM D-TR ITF	AO-UR DOW	UT AO-TR DOU	LN-UR MN	PE LN-TR PC							
289	WPC001PR	CHANGE DATA	3. 150. 4.		111. 5.		3. 36. 12.	7. 12. 0.	0. 18. 0.	0. 0. 0.	0. 14. 0.	7. 0. 0.	3. 9. 31.	3. 48. 0.	0. 13. 4.	19. 0. 0.	0. 36. 0.	0. 0. 0.	0. 36. 0.	15. 5. 0.	3. 917. 0.				
290	WPH001CS	CHANGE DATA	7. 205. 14.		124. 19.		3. 78. 10.	13. 17. 0.	4. 85. 0.	0. 51. 3.	0. 3. 0.	7. 6. 0.	4. 42. 0.	4. 70. 0.	3. 2. 0.	29. 0. 0.	0. 78. 1.	0. 1. 0.	0. 37. 0.	15. 4. 0.	28. 60863. 0.				
291	WPP001PR	CHANGE DATA	2. 145. 5.		101. 7.		2. 37. 10.	8. 13. 0.	0. 39. 0.	0. 25. 0.	0. 0. 0.	3. 0. 0.	1. 5. 23.	3. 34. 0.	1. 7. 0.	17. 0. 0.	0. 37. 0.	0. 0. 0.	0. 37. 0.	8. 1. 0.	1. 12297. 0.				
292	MSA001P4	CHANGE DATA	1. 110. 6.		70. 6.		0. 36. 10.	8. 15. 0.	1. 32. 0.	0. 23. 0.	0. 0. 0.	5. 0. 0.	8. 24. 0.	3. 33. 0.	1. 5. 1.	20. 0. 0.	0. 36. 0.	0. 0. 0.	0. 36. 0.	8. 2. 0.	0. 11645. 0.				
293	MSD001PR	CHANGE DATA	0. 30. 0.		21. 0.		0. 5. 2.	1. 2. 0.	0. 1. 0.	0. 1. 0.	0. 0. 0.	1. 0. 0.	0. 6. 0.	3. 7. 0.	0. 3. 0.	5. 0. 0.	0. 0. 0.	0. 5. 0.	0. 5. 0.	4. 1. 0.	0. 133. 0.				
294	MSM001PR	CHANGE DATA	1. 70. 4.		45. 4.		0. 18. 1.	7. 8. 0.	1. 13. 0.	0. 10. 0.	0. 0. 0.	3. 0. 0.	0. 16. 0.	2. 19. 0.	1. 4. 0.	14. 0. 0.	0. 18. 0.	0. 0. 0.	0. 5. 1.	7. 2537. 0.					
295	WST001PR	CHANGE DATA	2. 195. 0.		140. 0.		2. 50. 9.	6. 20. 0.	0. 35. 2.	0. 29. 0.	0. 0. 0.	5. 0. 0.	9. 33. 0.	3. 67. 0.	0. 12. 5.	22. 0. 0.	1. 50. 0.	0. 0. 0.	0. 22. 6.	2. 25935. 0.					
296	MUK001PR	CHANGE DATA	2. 55. 2.		41. 3.		2. 11. 6.	4. 6. 0.	0. 8. 0.	0. 7. 0.	0. 0. 0.	2. 0. 0.	2. 11. 0.	2. 12. 0.	0. 2. 0.	10. 0. 0.	0. 11. 0.	0. 0. 0.	0. 3. 1.	2. 960. 0.					
297	MWS001RW	CHANGE DATA	0. 40. 1.		25. 1.		0. 8. 4.	5. 4. 0.	0. 6. 0.	0. 4. 0.	0. 0. 0.	2. 0. 0.	0. 8. 0.	2. 8. 0.	0. 0. 0.	7. 0. 0.	0. 8. 0.	0. 8. 0.	0. 3. 1.	0. 358. 0.					
298	SDS001RW	CHANGE DATA	2. 180. 3.		114. 5.		0. 60. 12.	12. 24. 0.	2. 50. 1.	0. 37. 3.	0. 0. 0.	7. 3. 0.	2. 33. 0.	4. 67. 0.	0. 9. 5.	25. 0. 0.	0. 60. 1.	0. 1. 0.	0. 14. 7.	2. 3529. 0.					
299	SEK001RW	CHANGE DATA	2. 190. 7.		133. 15.		2. 53. 8.	10. 12. 0.	0. 45. 0.	0. 28. 2.	0. 0. 0.	7. 2. 0.	1. 34. 0.	4. 65. 0.	1. 11. 7.	22. 0. 0.	0. 53. 0.	0. 0. 0.	0. 17. 8.	1. 27094. 0.					
300	SEX001RW	CHANGE DATA	0. 18. 1.		14. 1.		0. 4. 2.	2. 2. 0.	0. 2. 0.	0. 1. 0.	0. 1. 0.	2. 0. 0.	0. 6. 0.	1. 6. 0.	0. 1. 0.	4. 0. 0.	0. 4. 0.	0. 4. 0.	0. 3. 1.	0. 86. 0.					

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APPENDIX D
DESCRIPTIVE STATISTICS FOR THE DATA

NADC-79163-50

BASIC STATISTICS FOR THE RAW DATA					

NUMBER OF DATA ITEMS = 8			NUMBER OF MODULES = 333		
NUM	CHANGE DATA	SUM	MEAN	VAR	STD DEV
1	TOTAL NUMBER OF CHANGES	462.	1.387	4.365	2.089
2	NUMBER OF DESIGN CHANGES	316.	.949	2.290	1.513
3	NUMBER OF CODE CHANGES	143.	.429	1.071	1.035
4	NUM OF UNKNOWN CHANGE AREAS	3.	.009	.009	.095
5	NUMBER OF KNOWN ERRORS	217.	.652	1.024	1.351
6	NUM OF KNOWN MODIFICATIONS	120.	.360	.599	.774
7	NUMBER OF UNKNOWN TYPE ERRORS	125.	.375	.651	.807
8	NUMBER OF POSSIBLE ERRORS	342.	1.027	3.014	1.736

BASIC STATISTICS FOR THE RAW DATA

NUMBER OF DATA ITEMS = 30

NUMBER OF MODULES = 333

NUM	SOURCE IMAGE DATA	SUM	MEAN	VAR	STD DEV
1	NUMBER OF CARDS	53614.	161.003	20548.569	143.348
2	NUMBER OF COMMENTS	35114.	105.447	8957.332	94.643
3	NUMBER OF PROCESSED CARDS	16915.	50.796	2338.615	48.359
4	REGISTERS-UNIQUE REFERENCES	2435.	7.312	14.764	3.842
5	REGISTERS-TOTAL REFERENCES	14227.	42.724	1818.514	42.644
6	NONBRANCH OPCODES-UNIQUE REFS	3749.	11.258	49.674	7.048
7	NONBRANCH OPCODES-TOTAL REFS	9740.	29.249	836.344	28.920
8	BRANCHING OPCODES-UNIQUE REFS	1697.	5.096	7.774	2.788
9	BRANCHING OPCODES-TOTAL REFS	3772.	11.327	135.046	11.621
10	DIRECTIVE OPCODES-UNIQUE REFS	1009.	3.030	.903	.950
11	DIRECTIVE OPCODES-TOTAL REFS	3403.	10.219	152.087	12.332
12	ALL OPCODES-UNIQUE REFERENCES	6455.	19.384	101.846	10.092
13	ALL OPCODES-TOTAL REFERENCES	16915.	50.796	2338.615	48.359
14	LOCAL NAMES-UNIQUE REFERENCES	4443.	13.342	133.154	11.539
15	LOCAL NAMES-TOTAL REFERENCES	8934.	26.829	899.058	29.984

BASIC STATISTICS FOR THE RAW DATA

NUMBER OF DATA ITEMS = 30

NUMBER OF MODULES = 333

NUM	SOURCE IMAGE DATA	SUM	MEAN	VAR	STD DEV
16	GLOBAL NAMES-UNIQUE REFERENCES	1905.	5.721	23.021	4.796
17	GLOBAL NAMES-TOTAL REFERENCES	2932.	8.805	109.880	10.482
18	NUMBERS-UNIQUE REFERENCES	2894.	8.691	37.431	6.118
19	NUMBERS-TOTAL REFERENCES	5474.	16.438	248.566	15.766
20	LOCAL EXPRESSIONS-UNIQUE REFS	220.	.661	2.472	1.572
21	LOCAL EXPRESSIONS-TOTAL REFS	277.	.832	5.839	2.416
22	GLOBAL EXPRESSIONS-UNIQUE REFS	145.	.435	.951	.975
23	GLOBAL EXPRESSIONS-TOTAL REFS	212.	.637	2.557	1.599
24	ALL VARIABLES-UNIQUE REFS	9607.	28.850	420.092	20.496
25	ALL VARIABLES-TOTAL REFS	17829.	53.541	2632.623	51.309
26	NUMBER OF IF-THEN-ELSEs	1324.	3.976	28.969	5.382
27	NUMBER OF DOWNFILES	26.	.078	.114	.338
28	NUMBER OF DOWNTILS	134.	.402	.663	.814
29	MCCABE NUMBER	1816.	5.453	33.755	5.810
30	PROGRAM CLARITY	14006315.	42061.006	7052248898.586	83977.669

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APPENDIX E

CORRELATION COEFFICIENTS BETWEEN
DATA ITEMS AND MEASURES OF CHANGE

CORRELATION COEFFICIENTS OF THE RAW DATA

NUMBER OF DATA ITEMS = 8 NUMBER OF MODULES = 333

NUM	CHANGE DATA		TOTAL CHANGES		KNOWN ERRORS		POSSIBLE ERRORS	
1	TOTAL NUMBER OF CHANGES		1.000000		.853940		.934648	
2	NUMBER OF DESIGN CHANGES		.892882		.790121		.898272	
3	NUMBER OF CODE CHANGES		.725259		.572812		.568503	
4	NUM OF UNKNOWN CHANGE AREAS		.028001		-.046074		.053513	
5	NUMBER OF KNOWN ERRORS		.853940		1.000000		.892925	
6	NUM OF KNOWN MODIFICATIONS		.602828		.302077		.279730	
7	NUMBER OF UNKNOWN TYPE ERRORS		.581848		.247536		.657226	
8	NUMBER OF POSSIBLE ERRORS		.934648		.892925		1.000000	

CORRELATION COEFFICIENTS OF THE RAW DATA

NUMBER OF DATA ITEMS = 30 NUMBER OF MODULES = 333

NUM	SOURCE IMAGE DATA	TOTAL CHANGES	KNOWN ERRORS	POSSIBLE ERRORS
1	NUMBER OF CARDS	.516413	.506414	.557527
2	NUMBER OF COMMENTS	.490649	.486786	.541725
3	NUMBER OF PROCESSED CARDS	.533702	.510392	.549127
4	REGISTERS-UNIT REF REFERENCES	.449041	.421520	.449341
5	REGISTERS-TOTAL REFERENCES	.467402	.468847	.498015
6	NONBRANCH OPCONFS-UNIQUE REFS	.437087	.419255	.437085
7	NONBRANCH OPCONFS-TOTAL REFS	.484773	.485520	.509235
8	BRANCHING OPCONFS-UNIQUE REFS	.421748	.388057	.459909
9	BRANCHING OPCONFS-TOTAL REFS	.443828	.489175	.548194
10	DIRECTIVE OPCONFS-UNIQUE REFS	.264230	.226475	.238708
11	DIRECTIVE OPCONFS-TOTAL REFS	.500102	.401904	.442571
12	ALL OPCONFS-UNIQUE REFERENCES	.446650	.421334	.454789
13	ALL OPCONFS-TOTAL REFERENCES	.533702	.510392	.549127
14	LOCAL NAMES-UNIQUE REFERENCES	.518873	.510757	.577164
15	LOCAL NAMES-TOTAL REFERENCES	.508202	.516048	.575326

CORRELATION COEFFICIENTS OF THE RAW DATA

	NUMBER OF DATA ITEMS = 30	NUMBER OF MODULES = 333	POSSIBLE ERRORS
16	GLOBAL NAMES-UNIQUE REFERENCES	.337157	.296319
17	GLOBAL NAMES-TOTAL REFERENCES	.389404	.280653
18	NUMBERS-UNIQUE REFERENCES	.542689	.512621
19	NUMBERS-TOTAL REFERENCES	.483432	.481315
20	LOCAL EXPRESSIONS-UNIQUE REFS	.223548	.252751
21	LOCAL EXPRESSIONS-TOTAL REFS	.356614	.428984
22	GLOBAL EXPRESSIONS-UNIQUE REFS	.319023	.298955
23	GLOBAL EXPRESSIONS-TOTAL REFS	.284782	.247641
24	ALL VARIABLES-UNIQUE REFS	.565372	.580939
25	ALL VARIABLES-TOTAL REFS	.550758	.569367
26	NUMBER OF IF-THEN-ELSE	.436654	.513860
27	NUMBER OF DOWHILES	.153170	.196464
28	NUMBER OF COUNTS	.150679	.169141
29	MAXIMUM NUMBER	.433407	.509997
30	PROGRAM CLARITY	.444370	.521087

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APPENDIX F

RESULTS FOR THE TWO PARAMETER LINEAR FIT

CONSTANTS FOR EQUATION USED TO CALCULATE PREDICTED VALUES FOR TWO-PARAMETER FIT

INDEPENDENT VARIABLE	RUN 1	RUN 2	RUN 3	RUN 4
MR	.038E-01	.0	.038E-01	.0
PC	.0	.0	.8856E-05	.4978E-05
PS	.345E-01	.244E-01	.0	.0
TS	.0	.0	.0	.5099E-01
CONSTANT	.2067E+00	.2171E+00	.7696E+00	.5325E+00

INDEPENDENT VARIABLE	RUN 1	RUN 2	RUN 3	RUN 4
MR	.038E-01	.0	.038E-01	.0
PC	.0	.0	.0	.0
PS	.1421E-01	.1086E-01	.0	.0
TS	.0	.0	.0	.2588E-01
CONSTANT	.2067E+00	.2171E+00	.7696E+00	.5325E+00

DEPENDENT VARIABLE	RUN 1	RUN 2	RUN 3	RUN 4
MR	.1913E-01	.0	.7022E-01	.0
PC	.0	.0	.6588E-05	.4344E-05
PS	.1747E-01	.104E-01	.0	.0
TS	.0	.4191E-01	.0	.5573E-01
CONSTANT	.2732E-01	.2019E-01	.3679E+00	.2131E+00

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

TOTAL CHANGES RUN 1

IDENTIFY, SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	71
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	142
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	76
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
TOT	142	77	47	20	12	10	5	5	3	0	2	0	0	1	0	333

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
REJECT ACCEPTANCE	22	172	200	202	303	310	321	326	329	329
REJECT ACCEPTANCE	15.5	51.7	75.1	44.7	91.0	44.5	90.4	97.9	98.8	98.8
REJECT ACCEPTANCE	102	53	20	4	5	3	1	1	0	0
REJECT ACCEPTANCE	47.0	15.9	5.0	2.7	1.5	.9	.3	.3	.0	.3
REJECT ACCEPTANCE	19	41	34	30	22	14	11	6	4	4
REJECT ACCEPTANCE	5.7	12.3	11.7	4.0	6.6	4.2	3.3	1.6	1.2	1.2
REJECT ACCEPTANCE	100	57	20	12	3	0	0	0	0	0
REJECT ACCEPTANCE	11.1	17.1	1.2	3.0	.4	.0	.0	.9	.0	.0

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MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FET

KNOWN ERRORS RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES															TOT	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	60
1	76	40	24	11	3	4	0	2	0	0	0	0	0	0	0	0	150
2	20	12	12	5	7	3	3	2	1	0	0	0	0	0	0	0	72
3	3	4	7	1	0	3	1	0	1	0	0	0	0	0	0	0	22
4	4	4	1	1	1	0	1	0	0	0	1	0	0	1	0	0	14
5	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	4
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	150	77	72	29	12	10	5	5	3	0	2	0	0	1	0	1	333

REJECTION & ACCEPTANCE CRITERIA:

REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
MEAN	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
STANDARD DEVIATION	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
MEAN	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
STANDARD DEVIATION	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
MEAN	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
STANDARD DEVIATION	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

POSSIBLE ERRORS RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

		ACTUAL TOTAL CHANGES															TOT
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
PREDICTED TOTAL CHANGES	1	12	1	3	1	5	4	2	4	1	0	0	0	0	0	0	0
	2	10	11	5	3	5	5	2	1	1	0	1	0	0	0	0	52
	3	1	3	3	4	1	6	0	0	0	0	0	0	0	0	0	14
	4	1	2	1	1	2	0	1	0	0	0	0	0	1	0	0	4
	5	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOT	142	77	45	20	12	10	5	5	3	0	2	0	0	1	0	333

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED TOTAL CHANGES > OR = NO ACCEPT IF < N

	NO	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	0	100	257	289	305	316	321	326	329	329	329
	0	57.1	77.2	80.6	81.6	82.9	83.4	83.9	84.5	84.5	84.5
REJECT REJECTION PERCENTAGE	101	41	11	7	3	2	2	2	2	0	0
	40.4	12.3	3.3	2.1	.4	.6	.6	.6	.6	.0	.0
REJECT ACCEPTANCE PERCENTAGE	0	63	44	32	24	15	10	5	4	4	4
	0	17.0	10.0	6.0	7.2	4.5	3.0	1.5	1.2	1.2	1.2
REJECT REJECTION PERCENTAGE	102	34	17	5	1	0	0	0	1	1	1
	40.4	11.7	3.1	1.5	.3	.3	.0	.0	.3	.3	.3

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

TOTAL CHANGES RUN 2

QUANTILES SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
1	17	27	14	3	4	2	3	1	0	0	0	0	0	0	0	234
2	17	19	12	2	7	4	1	2	0	0	1	0	0	0	0	68
3	5	2	1	0	0	2	0	0	1	0	0	0	0	0	0	13
4	2	3	1	2	1	0	2	0	0	0	0	0	1	0	0	12
5	1	2	1	0	1	0	0	0	0	0	1	0	0	0	0	4
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	17	11	4	29	12	10	5	5	3	0	2	0	0	1	0	333

REDUCTION & ACCEPTANCE CRITERIA:

REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
REDUCTION	0	100	250	204	303	316	321	326	328	329
ACCEPTANCE	0.0	24.1	70.4	80.3	51.0	94.9	96.4	97.9	98.5	98.8
REDUCTION	1.1	2.0	1.4	4	3	2	2	2	1	0
ACCEPTANCE	0.0	15.0	3.4	2.4	0.9	0.0	0.5	0.6	0.3	0.0
REDUCTION	0	0	0	31	24	15	10	5	3	4
ACCEPTANCE	0.0	15.0	13.0	2.3	7.2	4.0	3.0	1.5	0.9	1.2
REDUCTION	0	0	1	19	5	0	0	0	1	0
ACCEPTANCE	0.0	15.0	7.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0

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MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

KNOWN ERRORS RUN 2

QUANTIFIED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

	ACTUAL KNOWN ERRORS															TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOT	179	119	28	5	0	0	0	0	0	0	0	0	0	0	0	0

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
REJECT ACCEPTANCE	100	240	302	319	324	328	330	332	332	332
REJECT REJECTION	44.7	74.1	90.7	95.8	97.3	98.5	99.1	99.7	99.7	99.7
REJECT ACCEPTANCE	71	14	2	2	2	0	0	0	0	0
REJECT REJECTION	21.5	4.2	1.5	.8	.8	.0	.0	.0	.0	.0
REJECT ACCEPTANCE	30	30	24	12	7	5	3	1	1	1
REJECT REJECTION	4.0	11.4	7.2	3.0	2.1	1.5	.9	.3	.3	.3
REJECT ACCEPTANCE	23	21	2	0	0	0	0	0	0	0
REJECT REJECTION	24.9	9.3	.6	.0	.0	.0	.0	.0	.0	.0

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MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

POSSIBLE ERRORS RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
0	168	19	6	3	0	0	1	0	0	0	0	0	0	0	0	0	0	177
1	44	23	13	8	4	2	1	0	0	0	0	0	0	0	0	0	0	119
2	15	6	4	4	1	2	0	0	0	0	0	0	0	0	0	0	0	32
3	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	32	44	23	13	8	4	2	2	0	0	0	1	0	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:

REJECT IF PREDICTED KNOWN ERRORS > 99 = 1; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
REJECT IF PREDICTED KNOWN ERRORS > 99 = 1	100	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8
ACCEPT IF < N	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8	98.7
REJECT IF PREDICTED KNOWN ERRORS > 99 = 1	100	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8
ACCEPT IF < N	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8	98.7
REJECT IF PREDICTED KNOWN ERRORS > 99 = 1	100	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8
ACCEPT IF < N	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8	98.7
REJECT IF PREDICTED KNOWN ERRORS > 99 = 1	100	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8
ACCEPT IF < N	99.9	99.7	99.6	99.4	99.2	99.1	99.0	98.9	98.8	98.7

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MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

TOTAL CHANGES RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P R O B A B I L I T Y C O U N T	0	143	23	10	3	1	0	1	0	0	0	0	0	0	0	0	201
	1	4	23	11	10	4	2	1	0	0	0	0	0	0	0	0	106
	2	13	3	2	9	0	0	0	0	0	0	0	0	0	0	0	18
	3	1	0	0	2	0	2	0	1	0	0	0	0	0	0	0	6
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOT	232	29	23	15	5	4	2	2	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
PERCENT ACCEPTANCE	103	264	303	319	324	328	330	331	332	332
PERCENTAGE	44.4	79.3	91.0	95.8	97.3	98.5	99.1	99.4	99.7	99.7
PERCENT REJECTION	63	9	7	2	2	1	1	0	0	0
PERCENTAGE	18.9	2.7	2.1	.6	.6	.3	.3	.0	.0	.0
PERCENT ACCEPTANCE	38	43	22	12	7	4	2	1	1	1
PERCENTAGE	11.4	12.9	6.6	3.6	2.1	1.2	.6	.3	.3	.3
PERCENT REJECTION	69	17	1	0	0	0	0	1	0	0
PERCENTAGE	20.7	5.1	.3	.0	.0	.0	.0	.3	.0	.0

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

KNOWN ERRORS. RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
0	144	23	9	3	1	0	1	0	0	0	0	0	0	0	0	0	191
1	44	22	12	10	4	2	1	0	0	0	0	0	0	0	0	0	115
2	13	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	18
3	1	1	0	2	0	2	0	1	0	0	0	0	0	0	0	0	7
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	23	44	22	12	10	4	2	2	0	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:

REJECT IF PREDICTED KNOWN ERRORS > 0.2 = 4% ACCEPT IF < 4

	1	2	3	4	5	6	7	8	9	10
REJECT IF	13.4	21.2	30.2	31.9	32.4	32.4	33.0	33.2	33.2	33.2
ACCEPT IF	14.6	19.0	16.1	15.8	17.3	18.5	19.1	19.7	19.7	19.7
REJECT IF	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ACCEPT IF	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
REJECT IF	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ACCEPT IF	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

POSSIBLE ERRORS RUN 3

IDENTIFIED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

		ACTUAL POSSIBLE ERRORS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P R O B A B I L I T Y	0	27	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121
	1	17	13	14	7	2	2	1	0	0	0	0	0	0	0	0	0	145
	2	10	7	2	3	2	0	0	1	0	0	0	0	0	0	0	0	41
	3	4	2	4	2	3	1	0	0	0	0	0	0	0	0	0	0	18
	4	2	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	6
	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOT	10	10	24	10	14	5	2	1	3	0	1	0	0	0	0	1	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PROB. FREQ.	84	88.7	92.0	94.0	96.1	97.6	98.2	98.5	99.4	99.4
CORRECT REJECTION PROB. FREQ.	121	31	12	5	2	2	2	0	0	0
1 CORRECT ACCEPTANCE PROB. FREQ.	32	44	34	22	11	6	4	5	2	2
1 CORRECT REJECTION PROB. FREQ.	41	35	14	3	0	0	0	0	0	0

MULTIPLE REGRESSION ANALYSIS: TWO-PARAMETER FIT

TOTAL CHANGES RUN 4

IDENTIFIED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

ACTUAL POSSIBLE ERRORS																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT	
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
10	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
11	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
12	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
TOT	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

KNOWN ERRORS RUN 4

SUMMARIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
1	10	2	1	0	0	0	0	0	0	0	0	0	0	0	0	65
2	1	10	1	0	0	2	1	0	0	0	0	0	0	0	0	219
3	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	27
4	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	14
5	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	5
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	10	2	1	0	0	2	1	3	0	1	0	0	0	0	1	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = 4; ACCEPT IF < 4

	1	2	3	4	5	6	7	8	9	10
REJECT PROBABILITY	50	232	274	303	320	325	327	328	330	330
REJECT PROBABILITY	15.6	59.7	82.3	91.0	96.1	97.6	98.2	98.5	99.1	99.1
REJECT PROBABILITY	140	23	4	5	2	2	2	1	0	0
REJECT PROBABILITY	2.0	0.7	2.7	1.5	.6	.6	.6	.3	.0	.0
ACCEPTANCE PROBABILITY	13	52	37	22	11	6	4	4	2	2
ACCEPTANCE PROBABILITY	3.4	15.6	11.1	6.6	3.3	1.6	1.2	1.2	.6	.6
ACCEPTANCE PROBABILITY	175	20	13	3	0	0	0	0	1	1
ACCEPTANCE PROBABILITY	3.4	1.0	3.4	.7	.0	.6	.0	.0	.3	.3

MULTIPLE REGRESSION ANALYSIS: TWO PARAMETER FIT

POSSIBLE ERRORS RUN 4

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

		ACTUAL POSSIBLE ERRORS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P	0	40	20	4	0	0	0	1	0	0	0	0	0	0	0	0	0	105
P	1	79	47	16	15	7	3	1	1	0	0	0	0	0	0	0	0	169
P	2	16	7	7	2	4	1	0	0	1	0	0	0	0	0	0	0	38
P	3	5	2	1	2	2	0	0	0	0	0	1	0	0	0	0	0	13
P	4	2	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	6
P	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
P	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT		105	169	38	13	6	2	1	3	0	1	0	0	0	0	1	333	

REJECTION & ACCEPTANCE CRITERIA:

REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
REJECTION	276	276	276	303	320	325	327	328	331	331
ACCEPTANCE	99.9	99.9	99.9	91.0	96.1	97.6	98.2	98.5	99.4	99.4
REJECTION	1.0	2.7	10	5	2	2	2	2	0	0
ACCEPTANCE	99.9	97.1	89.9	94.8	97.8	97.8	97.8	97.8	100	100
REJECTION	1.0	2.7	10	5	2	2	2	2	0	0
ACCEPTANCE	99.9	97.1	89.9	94.8	97.8	97.8	97.8	97.8	100	100
REJECTION	1.0	2.7	10	5	2	2	2	2	0	0
ACCEPTANCE	99.9	97.1	89.9	94.8	97.8	97.8	97.8	97.8	100	100

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APPENDIX G

RESULTS FOR THE MULTIPARAMETER LINEAR FIT

ABBREVIATIONS OF PRIMARY INDEPENDENT VARIABLES

C : CODE NUMBER
 CL : CLERICAL CLARITY
 CS : CUSSES SOURCE
 TB : TOTAL BRANCHING INSTRUCTIONS

ABBREVIATIONS OF SECONDARY INDEPENDENT VARIABLES

B-TB : BRANCHING OPCODES-TOTAL REFERENCES
 B-UB : BRANCHING OPCODES-UNIQUE REFERENCES
 D-TB : DIRECTIVE OPCODES-TOTAL REFERENCES
 D-UB : DIRECTIVE OPCODES-UNIQUE REFERENCES
 G-TB : GLOBAL EXPRESSIONS-TOTAL REFERENCES
 G-UB : GLOBAL EXPRESSIONS-UNIQUE REFERENCES
 N-TB : GLOBAL NAMES-TOTAL REFERENCES
 N-UB : GLOBAL NAMES-UNIQUE REFERENCES
 L-TB : LOCAL EXPRESSIONS-TOTAL REFERENCES
 L-UB : LOCAL EXPRESSIONS-UNIQUE REFERENCES
 N-TB : LOCAL NAMES-TOTAL REFERENCES
 N-UB : LOCAL NAMES-UNIQUE REFERENCES
 N-TB : NUMBERS-TOTAL REFERENCES
 N-UB : NUMBERS-UNIQUE REFERENCES
 R-TB : REGISTER OPCODES-TOTAL REFERENCES
 R-UB : REGISTER OPCODES-UNIQUE REFERENCES
 R : RANGE OF RANGES
 R-TB : REGISTERS-TOTAL REFERENCES
 R-UB : REGISTERS-UNIQUE REFERENCES

- SE - IS FORMULATION USED TO CALCULATE PREDICTED VALUES FOR MULTI-PARAMETER FIT

	DEPENDENT VARIABLE:		TOTAL CHANGES	
	RUN 1	RUN 2	RUN 3	RUN 4
1	-.2572E+00	-.2665E+00	-.2645E+00	-.2645E+00
2	.1507E-04	.1510E-04	.1516E-04	.1516E-04
3	-.2459E-01	-.2463E-01	.0	.0
4	.0	.3164E-02	.0	-.1839E-01
5	.0	.0	-.1839E-01	.0
6	-.3357E-01	-.3424E-01	-.1926E-01	-.1926E-01
7	.0	.0	-.1592E-01	-.1592E-01
8	-.1317E+00	-.1304E+00	-.1132E+00	-.1132E+00
9	-.9235E-01	-.9393E-01	-.6676E-01	-.6676E-01
10	.6504E+00	.6503E+00	.6501E+00	.6501E+00
11	.5423E-01	.5441E-01	.4114E-01	.4114E-01
12	-.2203E-01	-.2495E-01	-.1864E-01	-.1864E-01
13	.3364E+00	.3284E+00	.2976E+00	.2976E+00
14	-.5346E+00	-.5313E+00	-.5104E+00	-.5104E+00
15	-.3563E-01	-.3607E-01	-.4057E-01	-.4057E-01
16	.1644E+00	.1647E+00	.1729E+00	.1729E+00
17	-.1376E-01	-.1371E-01	-.3435E-01	-.3435E-01
18	.1033E+00	.1031E+00	.1064E+00	.1064E+00
19	.0	.0	.1873E-01	.1873E-01
20	.5011E-01	.5146E-01	.4144E-01	.4144E-01
21	.1164E-01	.1164E-01	.1206E-01	.1206E-01
22	-.4455E-01	-.4410E-01	-.4454E-01	-.4454E-01
23	.1055E+00	.1054E+00	.1065E+00	.1065E+00
24	-.5432E+00	-.5442E+00	-.5967E+00	-.5967E+00

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VALUES USED TO CALCULATE PREDICTED VALUES FROM MULTI-PARAMETER FIT

	KNOWN VALUES			
	RUN 1	RUN 2	RUN 3	RUN 4
1-1	-1.113E-01	-1.117E-01	.0	.0
1-2	.1472E-04	.1472E-04	.1472E-04	.1472E-04
1-3	.0	.5071E-01	.0	.2420E-01
1-4	.0	.0	.2420E-01	.0
1-5	-1.702E-02	-1.1390E-01	.1701E-01	.1201E-01
1-6	.0	.0	.3764E-02	.3264E-02
1-7	-1.554E-01	-1.420E-01	-1.1251E-01	-1.1251E-01
1-8	-1.4085E-01	-1.7500E-01	-1.2998E-01	-1.2829E-01
1-9	.3441E+00	.4031E+00	.3337E+00	.3337E+00
1-10	.2264E-01	.2425E-01	.1392E-02	.1392E-02
1-11	-1.5604E-01	-1.7488E-01	-1.6390E-01	-1.6390E-01
1-12	.3640E+00	.3459E+00	.2926E+00	.2926E+00
1-13	-1.5564E+00	-1.5244E+00	-1.4884E+00	-1.4884E+00
1-14	-1.5538E-01	-1.5964E-01	-1.6739E-01	-1.6739E-01
1-15	.1249E+00	.1270E+00	.1325E+00	.1325E+00
1-16	-1.1691E-01	-1.1745E-01	-1.5303E-01	-1.5303E-01
1-17	.8216E-01	.8064E-01	.8620E-01	.8620E-01
1-18	.0	.0	.6301E-01	.6301E-01
1-19	.2254E-01	.2892E-01	.1165E-01	.1165E-01
1-20	.2249E-02	.2224E-02	.2866E-02	.2866E-02
1-21	-1.1329E-01	-1.1390E-01	-1.5105E-01	-1.5105E-01
1-22	.1073E+00	.1069E+00	.1081E+00	.1081E+00
1-23	-1.4855E+00	-1.4911E+00	-1.5819E+00	-1.5830E+00

CONSTANTS FOR EQUATION USED TO CALCULATE PREDICTED VALUES FOR MULTI-PARAMETER FIT

INDEPENDENT VARIABLE	DEPENDENT VARIABLE: POSSIBLE ERRORS			
	RUN 1	RUN 2	RUN 3	RUN 4
A	-0.1616E+00	-0.1694E+00	-0.1761E+00	-0.1761E+00
AE	0.192E+00	0.1921E+00	0.1931E+00	0.1931E+00
AS	-0.5588E-01	-0.5620E-01	0	0
AT	0	0.2712E-01	0	-0.2429E-01
ATP	0	0	-0.2429E-01	0
ATR	0.2497E-01	0.1893E-01	0.4222E-01	0.4222E-01
ATU	0	0	-0.4271E-01	-0.4271E-01
AU	-0.1391E+00	-0.1279E+00	-0.1014E+00	-0.1014E+00
AE-TP	-0.2114E+00	-0.2242E+00	-0.1822E+00	-0.1822E+00
AE-TR	0.7323E+00	0.7033E+00	0.6778E+00	0.6778E+00
AE-TU	0.4826E-01	0.4969E-01	0.2913E-01	0.2913E-01
AE-UN	-0.9156E-02	-0.2588E-01	-0.1596E-01	-0.1596E-01
AE-T	0.3703E+00	0.3378E+00	0.2898E+00	0.2898E+00
AE-UP	0.4968E+00	0.4687E+00	0.4363E+00	0.4363E+00
AE-TM	-0.1479E-01	-0.1656E-01	-0.2553E-01	-0.2553E-01
AE-U	0.1444E+00	0.1514E+00	0.1504E+00	0.1504E+00
AE-T	-0.1441E-01	-0.1469E-01	-0.4687E-01	-0.4687E-01
AE-U	0.6783E-01	0.6658E-01	0.9146E-01	0.9146E-01
AE-T	0	0	0.1101E-01	0.1101E-01
AE-UN	0.1747E-01	0.2311E-01	0.7587E-02	0.7587E-02
AE	0.7242E-02	0.7220E-02	0.7796E-02	0.7796E-02
AE-T	-0.712E-03	-0.1519E-02	-0.3484E-01	-0.3484E-01
AE-UP	0.1103E+00	0.1099E+00	0.1110E+00	0.1110E+00
CONSTANT	-0.4741E+00	-0.4790E+00	-0.5610E+00	-0.5610E+00

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

TOTAL CHANGES RUN 1

NORMALIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93
1	50	32	19	9	2	1	0	2	0	0	0	0	0	0	0	0	117
2	22	13	17	10	5	5	2	0	1	0	0	0	0	0	0	0	75
3	4	6	6	2	3	2	3	0	0	0	0	0	0	0	0	0	26
4	1	2	3	2	1	1	0	2	1	0	0	0	0	0	0	0	13
5	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
6	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOT	152	77	45	20	12	10	5	5	3	0	2	0	0	1	0	1	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	N=	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	65	101	252	285	304	315	321	325	328	329	
	19.5	34.4	75.7	75.6	91.3	94.6	96.4	97.6	98.5	98.8	
CORRECT REJECTION PERCENTAGE	153	75	26	13	7	5	4	3	1	1	
	45.9	22.5	7.6	3.9	2.1	1.5	1.2	.9	.3	.3	
INCORRECT ACCEPTANCE PERCENTAGE	28	29	33	26	20	12	8	14	3	3	
	8.4	8.7	9.9	7.8	6.0	3.6	2.4	1.2	.9	.9	
INCORRECT REJECTION PERCENTAGE	87	46	22	11	2	1	0	1	1	0	
	26.1	14.4	5.6	2.1	.6	.3	.0	.3	.3	.0	

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

KNOWN ERRORS RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P		152	12	5	0	0	0	0	0	0	0	0	0	0	0	0	0	169
R	1	69	32	11	7	2	1	1	0	0	0	0	0	0	0	0	0	123
E	2	10	5	5	7	3	3	1	0	0	0	0	0	0	0	0	0	34
U	3	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	4
I	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
T	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
K	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT		232	49	23	15	5	4	2	2	0	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	152 45.6	265 79.6	301 90.4	319 95.8	324 97.3	328 98.5	330 99.1	331 99.4	332 99.7	332 99.7
CORRECT REJECTION PERCENTAGE	84 25.2	25 7.5	4 1.2	3 .9	3 .9	2 .6	2 .6	1 .3	1 .3	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	17 5.1	27 8.1	25 7.5	11 3.3	6 1.8	3 .9	1 .3	0 0	0 0	0 0
INCORRECT REJECTION PERCENTAGE	60 24.0	10 4.0	3 .9	0 0	0 0	0 0	0 0	1 .3	0 0	0 0

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

POSSIBLE ERRORS RUN 1

CLASSIFIED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121
1	70	34	12	9	2	1	1	1	0	0	0	0	0	0	0	0	135
2	11	10	7	7	7	0	0	0	0	0	0	0	0	0	0	0	50
3	4	1	2	2	4	4	1	0	0	0	0	0	0	0	0	0	18
4	1	0	1	1	1	0	0	0	1	0	1	0	0	0	0	0	6
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOT	140	78	29	19	14	5	2	1	3	0	1	0	0	0	0	1	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	94 28.2	225 67.0	276 63.5	303 91.0	320 96.1	325 97.6	327 98.2	328 98.5	330 99.1	331 99.4
CORRECT REJECTION PERCENTAGE	126 37.8	44 13.2	16 5.4	6 1.8	3 .9	3 .9	2 .6	2 .6	1 .3	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	27 8.1	31 9.3	28 8.4	21 6.3	10 3.0	5 1.5	4 1.2	3 .9	1 .3	1 .3
INCORRECT REJECTION PERCENTAGE	86 25.6	33 9.9	9 2.7	3 .9	0 .0	0 .0	0 .0	0 .0	1 .3	0 .0

MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

TOTAL CHANGES RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	65	24	4	0	0	0	0	0	0	0	0	0	0	0	0	93
R	1	60	32	15	5	7	1	0	2	0	0	0	0	0	0	0	117
C	2	22	13	17	10	5	5	2	0	1	0	0	0	0	0	0	75
U	3	4	6	6	2	3	2	3	0	0	0	0	0	0	0	0	26
I	4	1	2	3	2	1	1	0	2	1	0	0	0	0	0	0	13
C	5	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	3
T	6	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
O	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	8	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
A	9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
L	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
N	TOT	152	77	45	20	12	10	5	5	3	0	2	0	0	1	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	85	181	252	285	304	315	321	325	328	329
	17.5	34.4	75.7	85.0	91.3	94.0	96.4	97.6	98.5	98.8
CORRECT REJECTION PERCENTAGE	155	75	26	13	7	5	4	3	1	1
	45.9	22.5	7.6	3.9	2.1	1.5	1.2	.9	.3	.3
INCORRECT ACCEPTANCE PERCENTAGE	20	29	33	20	20	12	8	4	3	3
	6.7	8.7	9.9	7.6	6.0	3.0	2.4	1.2	.9	.9
INCORRECT REJECTION PERCENTAGE	87	46	22	9	2	1	0	1	1	0
	20.1	14.4	6.0	2.7	.6	.3	.0	.3	.3	.0

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

KNOWN ERRORS RUN 2

NORMALIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

	ACTUAL KNOWN ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	140	11	0	1	0	0	0	0	0	0	0	0	0	0	0	168
N	1	74	31	10	5	2	1	1	0	0	0	0	0	0	0	0	124
C	2	19	5	5	7	3	3	1	0	0	0	0	0	0	0	0	35
I	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3
E	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
U	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
E	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
S	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	101	232	44	25	15	5	4	2	2	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	140 48.4	205 79.0	302 90.7	319 95.8	324 97.3	326 98.5	330 99.1	331 99.4	332 99.7	332 99.7
CORRECT REJECTION PERCENTAGE	01 24.3	25 7.5	4 1.2	3 .9	3 .9	2 .6	2 .6	1 .3	1 .3	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	20 6.0	27 10.1	25 7.5	11 3.3	6 1.8	3 .9	1 .3	0 .0	0 .0	0 .0
INCORRECT REJECTION PERCENTAGE	04 25.2	16 4.9	2 .6	0 .0	0 .0	0 .0	0 .0	1 .3	0 .0	0 .0

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

POSSIBLE ERRORS RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	95	22	5	0	0	0	0	0	0	0	0	0	0	0	0	122
R	1	69	40	12	9	2	1	1	0	0	0	0	0	0	0	0	135
E	2	10	15	9	7	7	0	0	0	0	0	0	0	0	0	0	48
D	3	5	1	2	2	4	4	1	0	0	0	0	0	0	0	0	19
I	4	1	0	1	1	1	0	0	1	0	1	0	0	0	0	0	6
C	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
L	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
S	TOT	180	70	29	19	14	5	2	1	3	0	1	0	0	0	1	333

REJECTION & ACCEPTANCE CRITERIA: REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	95 25.5	220 57.9	277 63.2	303 61.0	320 66.1	325 67.6	327 68.2	326 68.5	330 69.1	331 69.4
CORRECT REJECTION PERCENTAGE	120 37.0	44 13.2	18 5.4	6 1.8	3 .9	3 .9	2 .6	2 .6	1 .3	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	27 8.1	31 9.3	20 6.4	21 6.3	10 3.0	5 1.5	4 1.2	3 .9	1 .3	1 .3
INCORRECT REJECTION PERCENTAGE	65 25.5	32 9.0	10 3.0	3 .9	0 .0	0 .0	0 .0	0 .0	1 .3	0 .0

MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

TOTAL CHANGES RUN 3

UNBIVIALIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

		ACTUAL TOTAL CHANGES																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT		
P R E D I C T E D T O T A L C H A N G E S	1	42	20	7	0	0	0	0	0	0	0	0	0	0	0	0	0	96	
	2	42	30	14	5	2	1	0	2	0	0	0	0	0	0	0	0	116	
	3	14	13	17	9	5	5	2	0	1	0	0	0	0	0	0	0	70	
	4	7	0	7	3	2	1	3	0	0	0	0	0	0	0	0	0	28	
	5	1	2	2	2	2	2	0	2	1	0	0	0	0	0	0	0	14	
	6	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	3	
	7	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	
	10	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	TOT	152	77	45	20	12	10	5	5	3	0	2	0	0	1	0	1	333	

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	85	183	250	266	304	315	321	325	328	329
	19.5	55.0	75.1	85.9	91.3	94.0	96.4	97.6	98.5	98.8
CORRECT REJECTION PERCENTAGE	100	75	27	15	7	5	4	3	1	1
	45.0	22.5	8.1	4.5	2.1	1.5	1.2	.9	.3	.3
INCORRECT ACCEPTANCE PERCENTAGE	31	29	32	24	20	12	8	4	3	3
	9.3	6.7	9.0	7.2	6.0	3.6	2.4	1.2	.9	.9
INCORRECT REJECTION PERCENTAGE	67	46	24	8	2	1	0	1	1	0
	20.1	13.8	7.2	2.4	.6	.3	.0	.3	.3	.0

MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

KNOWN ERRORS RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

	ACTUAL KNOWN ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	153	13	0	0	0	0	0	0	0	0	0	0	0	0	0	174
R	1	71	33	12	7	2	1	1	0	0	0	0	0	0	0	0	127
E	2	0	3	2	7	3	3	1	0	0	0	0	0	0	0	0	25
D	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	4
I	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	232	49	23	15	5	4	2	2	0	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	100	27.0	30.1	31.9	32.4	32.8	33.0	33.1	33.2	33.2
	45.9	51.1	50.4	55.8	57.3	58.5	59.1	59.4	59.7	59.7
CORRECT REJECTION PERCENTAGE	60	21	4	3	3	3	2	1	1	1
	24.0	8.3	1.2	.7	.7	.7	.6	.3	.3	.3
INCORRECT ACCEPTANCE PERCENTAGE	21	31	25	11	6	2	1	0	0	0
	8.3	7.3	1.5	3.3	1.8	.6	.3	.0	.0	.0
INCORRECT REJECTION PERCENTAGE	19	11	3	0	0	0	0	1	0	0
	7.7	3.3	.9	.0	.0	.0	.0	.3	.0	.0

MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

POSSIBLE ERRORS RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128
H	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126
E	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	54
I	3	2	1	2	3	4	1	0	0	0	0	0	0	0	0	0	17
C	4	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	5
U	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
U	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	128	70	24	14	14	5	2	1	3	0	1	0	0	0	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	99	222	280	304	320	325	327	328	330	331
	29.7	60.7	67.1	71.3	76.1	77.6	78.2	78.5	79.1	79.4
CORRECT REJECTION PERCENTAGE	123	42	17	5	2	2	1	1	0	0
	35.7	12.6	5.1	1.5	.6	.6	.3	.3	.0	.0
INCORRECT ACCEPTANCE PERCENTAGE	27	32	26	21	10	5	4	3	1	1
	8.7	9.0	8.4	6.3	3.0	1.5	1.2	.9	.3	.3
INCORRECT REJECTION PERCENTAGE	81	36	7	2	0	0	0	0	1	0
	24.3	10.0	2.1	.6	.0	.0	.0	.0	.3	.0

MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

TOTAL CHANGES RUN 4

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	65	20	5	0	0	0	0	0	0	0	0	0	0	0	0	96
R	1	62	30	14	5	2	1	0	2	0	0	0	0	0	0	0	116
E	2	10	13	17	9	5	5	2	6	1	0	0	0	0	0	0	70
L	3	6	0	7	3	2	1	3	0	0	0	0	0	0	0	0	28
I	4	1	2	2	2	2	0	2	1	0	0	0	0	0	0	0	14
C	5	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	3
T	6	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
O	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
A	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
N	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOT	152	17	40	20	12	10	5	5	3	0	2	0	0	1	0	1	343

 REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	65	183	250	280	304	315	321	325	320	329
	17.5	55.0	75.1	85.9	91.3	94.6	96.4	97.6	98.5	98.8
CORRECT REJECTION PERCENTAGE	100	75	27	15	7	5	4	3	1	1
	45.0	22.5	8.1	4.5	2.1	1.5	1.2	.9	.3	.3
INCORRECT ACCEPTANCE PERCENTAGE	31	29	32	24	20	12	8	4	3	3
	7.5	8.7	7.5	7.2	6.0	3.0	2.4	1.2	.7	.7
INCORRECT REJECTION PERCENTAGE	07	46	24	8	2	1	0	1	1	0
	27.1	13.0	7.2	2.4	.6	.3	.0	.3	.3	.0

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

KNOWN ERRORS RUN 4

SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS															TOT	
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P	15"	10	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	175
1	70	33	12	7	2	1	1	0	0	0	0	0	0	0	0	0	0	126
2	0	3	2	7	3	3	1	0	0	0	0	0	0	0	0	0	0	25
3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	232	44	23	15	5	4	2	2	0	0	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	154 66.2	270 61.1	301 90.4	319 95.6	324 97.3	328 98.5	330 99.1	331 99.4	332 99.7	332 99.7
CORRECT REJECTION PERCENTAGE	60 26.0	21 6.3	4 1.2	3 .9	3 .9	3 .9	2 .6	1 .3	1 .3	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	21 6.3	31 9.3	25 7.5	11 3.3	6 1.8	2 .6	1 .3	0 .0	0 .0	0 .0
INCORRECT REJECTION PERCENTAGE	76 23.4	11 3.3	3 .9	0 .0	0 .0	0 .0	0 .0	1 .3	0 .0	0 .0

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MULTIPLE REGRESSION ANALYSIS: MULTI-PARAMETER FIT

POSSIBLE ERRORS RUN 4

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS																	
	ACTUAL-POSSIBLE-ERRORS																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P	99	23	6	0	0	0	0	0	0	0	0	0	0	0	0	0	128
R	1	65	35	12	9	2	1	1	0	0	0	0	0	0	0	0	126
U	2	13	19	8	7	7	0	0	0	0	0	0	0	0	0	0	54
I	3	2	1	2	3	4	4	1	0	0	0	0	0	0	0	0	17
E	4	1	0	1	0	1	0	0	0	1	0	1	0	0	0	0	5
U	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
E	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	180	78	29	19	14	5	2	1	3	0	1	0	0	0	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	99	222	280	304	320	325	327	328	330	331
	29.7	66.7	84.1	91.3	96.1	97.6	98.2	98.5	99.1	99.4
CORRECT REJECTION PERCENTAGE	123	42	17	5	2	2	1	1	0	0
	36.7	12.6	5.1	1.5	.6	.6	.3	.3	.0	.0
INCORRECT ACCEPTANCE PERCENTAGE	29	32	26	21	10	5	4	3	1	1
	8.7	9.6	8.4	6.3	3.0	1.5	1.2	.9	.3	.3
INCORRECT REJECTION PERCENTAGE	51	39	7	2	0	0	0	0	1	0
	14.3	11.4	2.1	.6	.0	.0	.0	.0	.3	.0

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APPENDIX H
RESULTS FOR THE NONLINEAR FIT

 ABBREVIATIONS OF INDEPENDENT VARIABLES

AL-1:	AN ARRAY OF LINES
B-T:	BRANCHING OPCODES-TOTAL REFERENCES
B-U:	BRANCHING OPCODES-UNIQUE REFERENCES
D-T:	DIRECTIVE OPCODES-TOTAL REFERENCES
D-U:	DIRECTIVE OPCODES-UNIQUE REFERENCES
G-T:	GLOBAL EXPRESSIONS-TOTAL REFERENCES
G-U:	GLOBAL EXPRESSIONS-UNIQUE REFERENCES
N-T:	GLOBAL NAMES-TOTAL REFERENCES
N-U:	GLOBAL NAMES-UNIQUE REFERENCES
LE-T:	LOCAL EXPRESSIONS-TOTAL REFERENCES
LE-U:	LOCAL EXPRESSIONS-UNIQUE REFERENCES
LN-T:	LOCAL NAMES-TOTAL REFERENCES
LN-U:	LOCAL NAMES-UNIQUE REFERENCES
M:	MACRO NUMBER
N-T:	NUMBERS-TOTAL REFERENCES
N-U:	NUMBERS-UNIQUE REFERENCES
NB-T:	NONBRANCHING OPCODES-TOTAL REFERENCES
NB-U:	NONBRANCHING OPCODES-UNIQUE REFERENCES
C:	COUNT OF CARDS
CL:	PROGRAM CLARITY
R-T:	REGISTERS-TOTAL REFERENCES
R-U:	REGISTERS-UNIQUE REFERENCES

CONSTANTS FOR EQUATION USED TO CALCULATE PREDICTED VALUES FOR NON-LINEAR FIT

INDEPENDENT VARIABLE	DEPENDENT VARIABLE: TOTAL CHANGES			
	RUN 1	RUN 2	RUN 3	RUN 4
ALLIS	-.6706E+00	-.6753E+00	-.1089E+01	-.1283E+01
H-TR	.0	.0	-.2074E-01	.0
B-UR	-.1550E+01	-.1388E+02	-.1685E+01	-.8627E-03
D-TR	.0	.0	-.6157E-02	.1096E-02
D-UR	.1953E-01	-.2371E-01	.1986E-01	-.1978E-02
GE-TR	-.1749E+01	-.3305E+01	-.1889E+01	-.3661E-01
GE-UR	.1480E+00	.1948E+00	.1476E+00	.1916E+00
GN-TR	.5369E-02	.2179E-02	.1562E-01	.8090E-02
GN-UR	-.1604E-02	.5801E-02	-.1293E-02	-.2238E-02
LE-TR	.7542E-01	.5696E-01	.8204E-01	.5636E-01
LE-UR	-.1170E+00	-.1162E+00	-.1285E+00	-.1162E+00
LN-TR	-.2365E-01	-.1288E+01	-.5128E-02	-.2499E-02
LN-UR	.5350E-01	.4201E-01	.3679E-01	.2937E-01
MI	.0	-.7216E-01	.0	-.7587E-01
N-TR	-.6818E-02	-.6399E-02	-.3274E-03	-.3797E-02
N-UR	.2972E-01	.2272E-01	.2418E-01	.1861E-01
PH-TR	.0	.0	-.1542E-02	.7040E-02
PH-UR	.1332E-01	.2105E-01	.1579E-01	.2498E-01
PC	.1193E-02	.3391E-02	.1035E-02	.2810E-02
PC	.2567E-05	.2619E-05	.0	.0
R-TR	-.7565E-02	-.9416E-02	-.3825E-02	-.9429E-02
S-UR	.3771E-01	.3391E-01	.3279E-01	.2981E-01
CONSTANT	.1074E+01	.1177E+01	.2219E+01	.2408E+01

VALUES FOR RUNS USED TO CALCULATE PREDICTED VALUES FOR NON-LINEAR FIT

	KNOWN ERRORS			
	RUN 1	RUN 2	RUN 3	RUN 4
1-1	-0.774E+00	-0.774E+00	-0.162E+01	-0.1659E+01
1-2	0	0	0.6475E-02	0
1-3	-0.7730E-03	0.2428E-04	0.6830E-02	0.1061E-01
1-4	0	0	0.9666E-02	0.1740E-02
1-5	-0.7373E-02	-0.1066E-01	0.3052E-01	0.2312E-01
1-6	-0.2608E-01	-0.2425E-01	-0.2389E-01	-0.2559E-01
1-7	0.1541E+00	0.1577E+00	0.1301E+00	0.1386E+00
1-8	0.4327E-02	0.4141E-02	0.2487E-02	0.5507E-02
1-9	-0.1705E-01	-0.1685E-01	-0.2472E-01	-0.2237E-01
1-10	0.1179E+00	0.1167E+00	0.9817E-01	0.1015E+00
1-11	-0.1864E+00	-0.1867E+00	-0.1639E+00	-0.1720E+00
1-12	-0.2462E-01	-0.2404E-01	-0.1142E-01	-0.7049E-02
1-13	0.5954E-01	0.4902E-01	0.2627E-01	0.2460E-01
1-14	0	-0.232E-02	0	-0.8542E-02
1-15	-0.7094E-02	-0.7148E-02	-0.1079E-01	-0.8379E-02
1-16	0.2924E-01	0.2895E-01	0.2304E-01	0.2206E-01
1-17	0	0	0.2418E-01	0.2069E-01
1-18	0.1378E-01	0.1429E-01	0.1544E-01	0.1505E-01
1-19	0.5386E-03	0.7685E-03	-0.3515E-03	0.1355E-04
1-20	0.3453E-05	0.3947E-05	0	0
1-21	-0.5837E-02	-0.5906E-02	-0.1186E-01	-0.1076E-01
1-22	0.4931E-01	0.4906E-01	0.3768E-01	0.3908E-01
CONSTANT	0.9235E+00	0.9082E+00	0.2397E+01	0.2357E+01

CONSTANTS FOR EQUATION USED TO CALCULATE PREDICTED VALUES FOR NON-LINEAR FIT

INDEPENDENT VARIABLE	DEPENDENT VARIABLE:		POSSIBLE ERRORS	
	RUN 1	RUN 2	RUN 3	RUN 4
CELLS	-.1101E+01	-.9591E+00	-.1E44E+01	-.1626E+01
W-TM	.0	.0	-.2187E-01	.0
W-UM	.1498E-01	.2713E-01	.2117E-01	.3601E-01
W-TN	.0	.0	-.1275E-01	-.5191E-02
W-UN	-.1317E-01	-.4457E-01	.6174E-02	-.1946E-01
GE-TM	-.6833E-01	-.8377E-01	-.6613E-01	-.8427E-01
W-UM	.2326E+00	.2721E+00	.2309E+00	.2684E+00
W-TM	.1831E-02	-.1642E-02	.593E-01	.5694E-02
W-UM	-.7806E-03	.6192E-02	-.3547E-02	-.2467E-02
W-TM	.4524E-01	.7408E-01	.8795E-01	.6274E-01
W-UM	-.1402E+00	-.1363E+00	-.1338E+00	-.1162E+00
W-TM	-.2751E-01	-.1939E-01	-.2945E-02	.4765E-04
W-UM	.5731E-01	.5847E-01	.4704E-01	.3834E-01
W-TM	.0	-.5404E-01	.0	-.6445E-01
W-TM	-.1373E-01	-.1351E-01	-.7551E-02	-.1060E-01
W-UM	.5377E-01	.2877E-01	.2844E-01	.2001E-01
W-TM	.0	.0	.2577E-02	.1160E-01
W-UM	.1088E-01	.1407E-01	.1426E-01	.1436E-01
W-TM	.7703E-02	.2703E-02	.7034E-03	.1442E-02
W-UM	.441E-01	.3440E-01	.0	.0
W-TM	-.5854E-02	-.7554E-02	-.4380E-02	-.9144E-02
W-UM	.5577E-01	.4654E-01	.4432E-01	.3811E-01
W-TM	.1441E+01	.1276E+01	.2732E+01	.2254E+01

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MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

TOTAL CHANGES RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	72	25	5	0	0	0	0	0	0	0	0	0	0	0	0	0	102
R	58	33	19	9	1	1	0	1	0	0	0	0	0	0	0	0	122
E	15	14	14	5	5	3	1	1	1	0	0	0	0	0	0	0	59
D	7	5	4	3	4	3	3	1	0	0	0	0	0	0	0	0	30
I	0	0	2	0	1	1	1	1	1	0	0	0	0	1	0	0	8
C	0	0	1	2	1	2	0	0	0	0	1	0	0	0	0	0	7
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
T	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOT	152	77	45	20	12	10	5	5	3	0	2	0	0	1	0	1	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	72 21.6	165 56.5	255 76.6	268 66.5	301 90.4	315 94.6	320 96.1	325 97.6	328 98.5	329 98.8
CORRECT REJECTION PERCENTAGE	151 45.3	68 20.4	31 9.3	14 4.2	7 2.1	4 1.2	4 1.2	3 .9	2 .6	1 .3
INCORRECT ACCEPTANCE PERCENTAGE	30 9.0	36 10.8	28 8.4	25 7.5	20 6.0	13 3.9	8 2.4	4 1.2	2 .6	3 .9
INCORRECT REJECTION PERCENTAGE	80 24.0	41 12.3	19 5.7	6 1.8	5 1.5	1 .3	1 .3	1 .3	1 .3	0 .0

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MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

KNOWN ERRORS RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS																
	ACTUAL KNOWN ERRORS															TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	0	163	18	6	0	0	0	0	0	0	0	0	0	0	0	0
R	1	59	26	10	7	2	1	1	0	0	0	0	0	0	0	0
E	2	8	5	5	5	3	3	1	0	0	0	0	0	0	0	0
D	3	2	0	2	3	2	0	0	0	0	0	0	0	0	0	0
I	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
T	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
K	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
M	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	232	44	23	15	5	4	2	2	0	0	0	1	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	100	99.9	99.8	99.7	99.6	99.5	99.4	99.3	99.2	99.1
CORRECT REJECTION PERCENTAGE	77	75	73	71	69	67	65	63	61	59
INCORRECT ACCEPTANCE PERCENTAGE	24	27	29	31	33	35	37	39	41	43
INCORRECT REJECTION PERCENTAGE	64	65	66	67	68	69	70	71	72	73

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MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

POSSIBLE ERRORS RUN 1

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	102	23	4	0	0	0	0	0	0	0	0	0	0	0	0	0	133
R	61	39	10	12	2	1	1	1	0	0	0	0	0	0	0	0	127
E	12	15	5	4	7	0	0	0	0	0	0	0	0	0	0	0	44
D	5	1	4	1	3	3	1	0	0	0	0	0	0	0	0	0	18
I	0	0	1	2	2	1	0	0	1	0	1	0	0	0	0	0	8
C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	180	76	29	19	14	5	2	1	3	0	1	0	0	0	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	102 30.6	225 67.6	276 82.9	303 91.0	320 96.1	325 97.6	327 98.2	328 98.5	330 99.1	331 99.4
CORRECT REJECTION PERCENTAGE	121 36.3	39 11.7	17 5.1	7 2.1	2 .6	2 .6	1 .3	1 .3	0 .0	0 .0
INCORRECT ACCEPTANCE PERCENTAGE	31 9.3	35 10.5	28 8.4	19 5.7	10 3.0	5 1.5	4 1.2	3 .9	1 .3	1 .3
INCORRECT REJECTION PERCENTAGE	78 23.4	33 9.9	11 3.3	3 .9	0 .0	0 .0	0 .0	0 .0	1 .3	0 .0

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

TOTAL CHANGES RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES																	
ACTUAL TOTAL CHANGES																	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P	0	65	24	6	0	0	0	0	0	0	0	0	0	0	0	0	95
R	1	68	34	17	5	2	1	0	2	0	0	0	0	0	0	0	129
E	2	14	13	13	10	4	4	1	0	1	0	0	0	0	0	0	60
O	3	5	4	5	2	4	2	2	0	0	0	0	0	0	0	0	25
I	4	0	2	2	1	1	1	2	2	0	0	0	0	0	0	0	11
C	5	0	0	1	1	1	2	0	0	1	0	0	0	1	0	0	7
T	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	7	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
A	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
L	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
C	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	TOT	142	77	45	20	12	10	5	5	3	0	2	0	1	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	05	191	254	286	302	315	320	325	326	326	329
	19.5	57.4	76.3	85.9	90.7	94.6	96.1	97.6	98.5	98.8	
CORRECT REJECTION PERCENTAGE	150	70	26	15	8	4	4	2	0	0	
	44.0	21.0	5.4	4.5	2.4	1.2	1.2	.6	.0	.0	
EXCEPT ACCEPTANCE PERCENTAGE	30	33	36	23	14	12	7	4	3	3	
	9.0	9.9	9.0	6.4	5.4	3.6	2.1	1.2	.9	.9	
EXCEPT REJECTION PERCENTAGE	67	36	20	8	4	1	1	1	1	0	
	20.1	11.4	6.0	2.4	1.2	.3	.3	.3	.3	.0	

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

KNOWN ERRORS RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS

		ACTUAL KNOWN ERRORS																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
		164	17	7	0	0	0	0	0	0	0	0	0	0	0	0	0	188
P	1	58	27	9	7	2	1	1	0	0	0	0	0	0	0	0	0	105
R	2	2	5	5	3	3	1	0	0	0	0	0	0	0	0	0	0	30
E	3	2	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	7
I	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
T	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W	11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
N	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT		232	49	23	15	5	4	2	2	0	0	0	1	0	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED KNOWN ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	16%	266	300	312	324	328	330	331	332	332
	49.2	79.9	90.1	95.8	97.3	98.5	99.1	99.4	99.7	99.7
CORRECT REJECTION PERCENTAGE	77	25	6	3	3	2	2	1	1	1
	23.1	7.5	1.6	.9	.9	.6	.6	.3	.3	.3
INCORRECT ACCEPTANCE PERCENTAGE	4%	27	23	11	6	3	1	0	0	0
	7.2	8.1	6.9	3.3	1.8	.9	.3	.0	.0	.0
INCORRECT REJECTION PERCENTAGE	68	15	4	0	0	0	0	1	0	0
	20.4	4.5	1.2	.0	.0	.0	.0	.3	.0	.0

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

POSSIBLE ERRORS RUN 2

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	100	24	5	0	0	0	0	0	0	0	0	0	0	0	0	130
R	1	67	38	13	11	2	1	1	1	0	0	0	0	0	0	0	134
E	2	10	15	5	5	6	0	0	0	0	0	0	0	0	0	0	41
D	3	3	1	3	2	4	3	1	0	0	0	0	0	0	0	0	17
T	4	0	0	1	1	2	1	0	0	1	0	1	0	0	0	0	7
E	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
D	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
L	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	140	74	24	14	14	5	2	1	3	0	1	0	0	0	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	100	274	276	303	319	325	327	328	330	331
	30.0	83.5	83.5	91.0	95.0	97.0	98.2	98.5	99.1	99.4
CORRECT REJECTION PERCENTAGE	122	34	18	7	2	2	1	1	0	0
	36.6	11.7	5.4	2.1	.6	.6	.3	.3	.0	.0
INCORRECT ACCEPTANCE PERCENTAGE	30	35	27	19	10	5	4	3	1	1
	9.0	10.5	8.1	5.7	3.0	1.5	1.2	.9	.3	.3
INCORRECT REJECTION PERCENTAGE	40	29	9	3	1	0	0	0	1	0
	12.0	8.7	2.7	.9	.3	.0	.0	.0	.3	.0

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

TOTAL CHANGES RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES																
	ACTUAL TOTAL CHANGES															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	0	58	21	5	2	0	0	0	0	0	0	0	0	0	0	0
P																
R	1	73	38	18	7	2	1	0	2	0	0	0	0	0	0	0
E																
D	2	15	14	11	8	5	4	1	0	1	0	0	0	0	0	0
I																
C	3	5	4	7	2	2	2	3	1	0	0	0	0	0	0	0
T																
E	4	1	0	2	0	1	1	1	1	0	0	0	0	0	0	0
D																
T	5	0	0	1	1	1	2	0	0	1	0	0	0	0	1	0
D																
A	6	0	0	0	2	0	0	0	0	1	0	1	0	0	0	0
T																
A	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I																
C	8	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
H																
A	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N																
G	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E																
S	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT		152	77	45	20	12	10	5	5	3	0	2	0	0	1	0

REJECTION & ACCEPTANCE CRITERIA:											
	REJECT IF	PREDICTED TOTAL CHANGES								ACCEPT IF	
		> OR = N								< N	
	N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE		58	190	254	287	301	314	321	325	329	329
PERCENTAGE		17.4	57.1	76.3	86.2	90.4	94.3	96.4	97.6	98.8	98.8
CORRECT REJECTION		153	67	26	13	8	4	2	1	0	0
PERCENTAGE		45.9	20.1	7.8	3.9	2.4	1.2	.6	.3	.0	.0
INCORRECT ACCEPTANCE		27	36	32	25	18	12	9	5	3	3
PERCENTAGE		8.1	10.8	9.6	7.5	5.4	3.6	2.7	1.5	.9	.9
INCORRECT REJECTION		94	39	20	7	5	2	0	1	0	0
PERCENTAGE		29.2	11.7	6.0	2.1	1.5	.6	.0	.3	.0	.0

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

KNOWN ERRORS RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED KNOWN ERRORS VS. ACTUAL KNOWN ERRORS																
	ACTUAL KNOWN ERRORS															TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	0	165	18	7	0	0	0	0	0	0	0	0	0	0	0	0
R	1	56	27	10	8	1	0	1	0	0	0	0	0	0	0	0
E	2	9	4	5	4	4	3	1	0	0	0	0	0	0	0	0
C	3	2	0	1	3	0	1	0	0	0	0	0	0	0	0	0
I	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
E	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
D	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	11	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
R	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	332	64	23	15	5	4	2	2	0	0	0	1	0	0	0	333

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED KNOWN ERRORS > CR = N; ACCEPT IF < N

	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	100	99.9	99.1	98.6	97.3	96.5	95.1	93.7	92.7	92.7
CORRECT REJECTION PERCENTAGE	76	25	7	3	3	2	1	1	1	1
INCORRECT ACCEPTANCE PERCENTAGE	25	27	22	11	6	3	2	0	0	0
INCORRECT REJECTION PERCENTAGE	24.1	15	3	0	0	0	0	0	0	0

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

POSSIBLE ERRORS RUN 3

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

	ACTUAL POSSIBLE ERRORS																TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
P	0	104	24	5	1	0	0	0	0	0	0	0	0	0	0	0	135
R	1	41	37	10	11	2	1	1	0	0	0	0	0	0	0	0	124
E	2	11	16	5	5	7	1	0	0	0	0	0	0	0	0	0	49
O	3	3	1	1	0	3	2	1	0	0	0	0	0	0	0	0	13
I	4	1	0	2	1	2	1	0	0	1	0	1	0	0	0	0	9
T	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
E	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D	7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	TOT	140	76	29	19	14	5	2	1	3	0	1	0	0	0	0	332

REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	104 31.2	24 67.9	5 83.2	1 90.4	0 95.6	0 97.6	0 98.2	0 98.5	0 99.4	0 99.4
CORRECT REJECTION PERCENTAGE	121 36.3	41 12.3	15 4.5	7 2.1	2 .6	2 .6	1 .3	0 .0	0 .0	0 .0
INCORRECT ACCEPTANCE PERCENTAGE	31 9.3	33 9.9	30 9.0	19 5.7	10 3.0	5 1.5	4 1.2	4 1.2	1 .3	1 .3
INCORRECT REJECTION PERCENTAGE	76 22.4	32 9.6	10 3.0	5 1.5	1 .3	0 .0	0 .0	0 .0	0 .0	0 .0

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MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

TOTAL CHANGES RUN 4

QUANTIZED SCATTER DIAGRAM OF PREDICTED TOTAL CHANGES VS. ACTUAL TOTAL CHANGES

	ACTUAL TOTAL CHANGES															TOT
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PREDICTED	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	5	14	1	1	0	0	0	0	0	0	0	0	0	0	0	0
1	7	24	17	5	2	1	0	2	0	0	0	0	0	0	0	0
2	17	14	11	5	4	0	0	0	1	0	0	0	0	0	0	0
3	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0
4	0	1	3	1	1	2	2	2	1	0	0	0	0	0	0	0
5	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
6	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0
7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT	152	77	43	20	12	10	5	5	3	0	2	0	0	1	0	0

REJECTION & ACCEPTANCE CRITERIA:
REJECT IF PREDICTED TOTAL CHANGES > OR = N; ACCEPT IF < N

	0	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	50	141	252	286	302	315	321	325	329	329	329
	16.0	57.6	75.7	85.4	90.7	94.6	96.4	97.6	98.8	98.8	98.8
CORRECT REJECTION PERCENTAGE	153	60	24	15	6	4	3	1	1	0	0
	45.9	20.4	8.4	4.5	1.8	1.2	.9	.3	.3	.0	.0
INCORRECT ACCEPTANCE PERCENTAGE	27	35	30	23	20	12	8	5	2	3	3
	9.1	10.5	9.0	6.9	6.0	3.6	2.4	1.5	.6	.9	.9
INCORRECT REJECTION PERCENTAGE	90	30	22	8	4	1	0	1	0	0	0
	24.9	11.4	6.0	2.4	1.2	.3	.0	.3	.0	.0	.0

1. THE PROBLEM

KNOW ERRORS PTE 4

ACTUAL KNOWN ERRORS

REJECTION & ACCEPTANCE CRITERIA:

[illegible]

MULTIPLE REGRESSION ANALYSIS: NON-LINEAR FIT

POSSIBLE ERRORS RUN 4

QUANTIZED SCATTER DIAGRAM OF PREDICTED POSSIBLE ERRORS VS. ACTUAL POSSIBLE ERRORS

		ACTUAL POSSIBLE ERRORS															TOT	
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOT
P R E D I C T E D P O S S I B L E E R R O R S	0	97	29	5	0	0	0	0	0	0	0	0	0	0	0	0	0	131
	1	69	31	12	11	2	1	1	1	0	0	0	0	0	0	0	0	128
	2	10	17	8	4	4	2	0	0	0	0	0	0	0	0	0	0	45
	3	3	1	2	3	5	1	1	0	0	0	0	0	0	0	0	0	17
	4	1	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	7
	5	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	3
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOT		180	74	29	19	14	5	2	1	3	0	1	0	0	0	0	0	332

 REJECTION & ACCEPTANCE CRITERIA:
 REJECT IF PREDICTED POSSIBLE ERRORS > OR = N; ACCEPT IF < N

N:	1	2	3	4	5	6	7	8	9	10
CORRECT ACCEPTANCE PERCENTAGE	97	226	278	302	319	325	327	328	331	331
	29.1	67.9	83.5	90.7	95.8	97.6	98.2	98.5	99.4	99.4
CORRECT REJECTION PERCENTAGE	118	41	19	7	3	1	1	0	0	0
	35.4	12.3	5.7	2.1	.9	.3	.3	.0	.0	.0
INCORRECT ACCEPTANCE PERCENTAGE	38	33	26	19	9	6	4	4	1	1
	10.2	9.9	7.8	5.7	2.7	1.8	1.2	1.2	.3	.3
INCORRECT REJECTION PERCENTAGE	83	32	9	4	1	0	0	0	0	0
	24.9	9.6	2.7	1.2	.3	.0	.0	.0	.0	.0

D I S T R I B U T I O N L I S T

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